# STUDIES IN THEISM.

BORDEN P. BOWNE.

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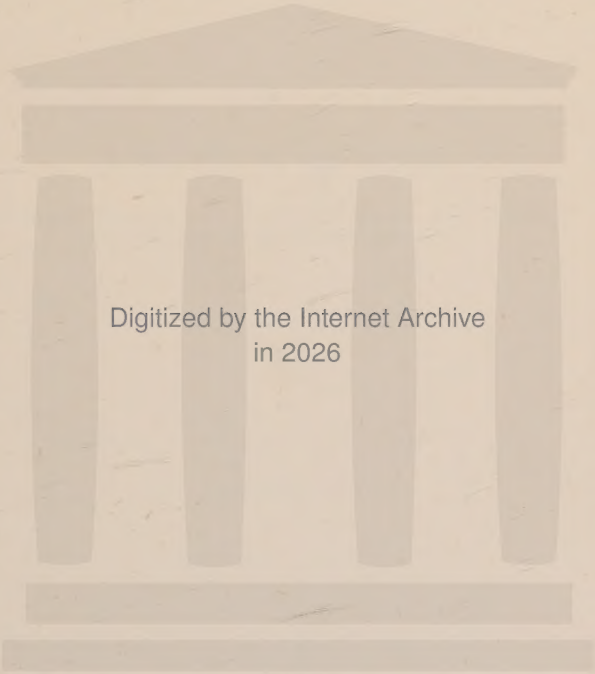
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1881

# STUDIES IN THEISM.

BY

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# PREFACE.

THE following papers have been written long enough for me to become somewhat dissatisfied with them. But as I still agree with them for "substance of doctrine," and as I have not the time for a rewriting, I venture their publication. The Introduction is written for the sake of calling attention to several points which are rather obscurely stated in the work itself, and which are of great importance in estimating the value of the theistic argument. The title shows that the work does not claim to be a complete treatise on theism.

I have dwelt mainly upon the theoretical aspects of the question, and have aimed to expound principles rather than to give illustrations. No other method can be decisive. Illustrations can have little value until principles are settled; and when they are settled, there is less need of illustration. At the same time I have not written for a philosophical audience. If I had had such readers in mind, both matter and form would have been modified. This, however, does not mean that I have misrepresented my own views, but only that many

points of philosophic theory have been omitted, as they would have seemed to most readers to be needless, if not misleading, refinements. I hope at no very distant date to deal with these philosophic questions in a more thorough manner.

The "conflict of science and religion" has not been referred to. This is partly due to a conviction that it is both an unjust, and a pernicious practice to gather all the friends of religion into one camp, and all the friends of science into another, and then to represent them as eternally hostile. Nothing could be more untrue to history, and it has a pernicious influence upon weak heads, which, unfortunately, are not wanting on either side. But the omission is mainly due to the fact, that what a thoughtful person wishes to know is, not what science teaches, nor what religion teaches, but what is proved, or made probable. Reason resents every attempt to intimidate it, in the name of authority, from whatever quarter. It decides by evidence, not by names. It accepts nothing, therefore, because it calls itself science, or because it calls itself religion, but because it has evidence in its favor. No more does reason reject any thing because it is science or because it is religion, but because of a lack of evidence. No attentive reader can have failed to observe that this simple principle has been largely ignored by both sides in the controversy.

Many a view has been passionately rejected because it was thought to be irreligious; and, conversely, the last few years have seen many a view passionately advocated whose chief recommendation was, that it trampled all moral and religious convictions under foot. It has taken a long time to learn that a theory is not proved by being religious; a still longer time is needed to reach the conviction that it is also not proved by being irreligious.

A word about dogmatism. A writer's statements are only his own opinions, and no vehemence of utterance can make them more. This being understood, one may be allowed to express his views in a dogmatic form. It saves both time and space, and is withal in better taste. When a discussion is between equals, professions of fallibility are both tiresome and needless, for the audience will surely take the fact for granted. If, then, some rather vivacious expressions of opinion occur in these papers, they are not to be taken as showing a belief in personal infallibility. Every rational author knows that his opinions are primarily only his opinions; he publishes in the hope that they may be shared by others.

"There are many echoes, but few voices." Like all works on this subject, this work is more an echo than a voice, though it may not be without some individuality of tone from the last reflecting sur-

face. There is little new to be offered on either side; and any thing which should be new in principle would almost certainly be a personal aberration. But it is necessary for each age to do its own thinking; and while the truth may be the same from age to age, the presentation will always vary. But while this work is an echo of what theistic thinkers have been saying from the beginning, I am not conscious of any specific obligation to other writers which demands recognition. I shall always be under general obligation to my friends and former instructors, Professor Ulrici, of Halle, and Professor Lotze, of Göttingen.

B. P. B.

BOSTON, *May* 5, 1879.

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# INTRODUCTION.

IN order to a correct estimate of the theistic argument, we must know its exact scope and purpose. Misconception on this point is very common, and injustice is done to theism. It is commonly assumed that the theist aims to demonstrate the existence of God. Of course a strict demonstration is impossible, and then theism is held to be overthrown. No notice is taken of the great fact and field of probable reasoning upon which both daily life and objective science are built. It is also urged that the theist assumes that all order is designed order, and thus begs the question; for the dispute is, whether the natural order be designed. Most criticisms of theism turn upon one of these objections. Either the argument is rejected as a failure, or it is called a begging of the question. Such criticisms, so far as they are made in good faith, rest upon a failure to distinguish between demonstrating a theorem and solving a problem. The demonstration of theorems belongs entirely to the formal sciences; all the sciences which deal with reality aim only at the solution of problems. They find their problems in the observed facts, and then they raise the question how we must think of the back-lying cause or causes, or

antecedents, in order that the facts should be as they are. Every scientific hypothesis is an attempt to solve the problem presented by a certain class of facts; and the proof of the hypothesis always consists, not in its being impregnably deduced according to the canons of formal logic, but in its furnishing the only adequate solution of the facts. The geologist finds traces of fire in the rocks, and he explains them by assuming that the earth was once molten. Now even allowing this conclusion to be just, he would not pretend that he had demonstrated the original fluidity of the earth, but only that he had given a rational solution of the problem contained in certain geological facts. So with the nebular, the atomic, the ether, the evolution theories, etc.; they are all solutions of problems, and our faith in them is based entirely upon their adequacy to the facts.

The theistic theory is of the same kind; it has the same aim, and is judged by the same canon. The theist does not claim to demonstrate the existence of God, but only that the problem of the world and life cannot be solved without God. He does not assume that all order is designed order, but he insists that the actual order, which of course includes man, cannot be understood, except as the outcome of design. To the objection that he assumes that nature can be understood, he replies, that all science is based on the same assumption, and is but an attempt to comprehend the facts of experience. To the claim that what is necessary to an understanding of nature is not, therefore, necessarily a fact of

nature, he replies, that so far as this lies against theism, it is equally valid against any and every scientific hypothesis. Atoms, ethers, and a certain order of past events are necessary to an understanding of the present facts; but if we choose to be skeptical, we can say that this necessity does not prove their reality; and we can say it in this case with as much justice as in the case of theism.

Another point to be borne in mind is, that every theory must be judged, not only by its power of making grimaces at opposing theories, but also and chiefly by its own positive adequacy to the facts. This simple rule of criticism has been so generally ignored in judging theism that it is necessary to insist upon it. Every one acquainted with atheistic treatises will recognize that their chief force has been in picking flaws in the theistic argument. There has been comparatively little effort to show any positive sufficiency of atheism to give any rational account of the facts. On the contrary, the failure of theism to exclude all possibility of doubt has been oddly enough mistaken for a proof of atheism. It never occurs to the atheist to ask whether the difficulties and improbabilities of his own system be not infinitely greater than those of theism. In this respect he is like a disciple of the Ptolemaic astronomy, who, finding difficulties in Copernicus and Newton, should conclude that, therefore, the Ptolemaic system is true. A rational judgment can be reached only as the theistic theory, with all its difficulties, is placed be-

side the atheistic theory, with all its difficulties. When this is done, the theist will have no cause to be ashamed of his faith. In neither case is it a matter of demonstration, but of rational probability. This point is generally kept out of sight in atheistic discussions; all the more, then, must the theist call attention to it.

Still another point must be mentioned. The nature of reality is never a matter of perception, but solely of inference from the phenomena. At this point crude common sense often lends aid and comfort to atheism and materialism. Matter as noumenon and as cause is supposed to be given in immediate perception; and as God and the soul are not perceived, but inferred, the impression spreads that atheism and materialism have fact on their side, while the opposing views are only subjective theories. Of all crudities in thinking, this is certainly one of the worst; it is in philosophy what Jasperism is in astronomy. It will be remembered that Brother Jasper, of Richmond, Va., has reached the conclusion that the sun moves; for he "hab seen de sun on one side ob de house in de mornin', and on de odder side ob de house in de afternoon; and as de house hab not moved, derefo' de sun he do move." This is very clear and convincing. Brother Jasper thought that a resting sun could not be seen on both sides of the house, and hence he mistook the astronomical truth for a denial of the phenomenon. The philosophical Jaspers make the same blunder. They mistake inferences from the phenomena for their denial. Hence when

they hear that nature may be but the manifestation of a spiritual power working under the forms of space and time, they fancy that visible and tangible phenomena have been denied; and they think it sufficient to stamp on the ground or to kick a stone in disproof. It is pitiable in the extreme to find even distinguished editors of distinguished periodicals advancing such ghastly irrelevances. No one dreams of denying any of the phenomena of inner or outer experience. Brother Jasper, of course, has a very clear idea of matter; but the physicist finds himself forced to go behind material phenomena—not to deny, but to explain. At once he finds himself in a supersensible world, which can be entered only by thought, and whose reality can be assured only by thought. But the results reached are never to be mistaken for denials of phenomena, but as conclusions from them. The astronomical heavens do not deny the visible heavens, but are based upon them. It is oversight of this fact which accounts for the popular impression that philosophy leads to skepticism; and which, on the other hand, accounts for the popular skepticism of philosophical results. The question of all speculation is not whether there is reality, but what it is, and what its nature may be; and science and philosophy alike recognize that this question cannot be solved by immediate perception, but only by consistent thinking upon the phenomena. The most of the factors of physical science belong entirely to a thought-world, and can only be reached by thought. And even the Jaspers

of speculation themselves partly recognize this fact. When they are told of dynamic atoms, and solid ethers, and omnipresent forces, they are charmingly acquiescent; but when the theist, by the same method and from the same data, concludes to an omnipresent force which is also intelligent, then, instead of examining his logic, they think it sufficient to call his view an unheard-of absurdity, and an inversion of common sense. Custom explains many beliefs; it also explains many unbeliefs. The customary is clear, and clear because customary. Nevertheless, we insist upon the point. When it is seen that the complex and unintelligible theories of the atheist and materialist are not facts of observation, but only their way of explaining the facts, those theories will not be long in appearing in their innate irrationality.

# STUDIES IN THEISM.

## CHAPTER I.

### KNOWLEDGE AND SKEPTICISM.

TWO questions, quite distinct, are often confused: 1. Is knowledge possible? 2. How is knowledge possible? The former question is plainly the more fundamental, and the skeptic's reply is, that knowledge is not possible. Thus, at the outset of our studies in Theistic Philosophy, "No thoroughfare" stares us in the face. Before going on we must have a word with the skeptic. Of course it cannot be our intention to prove that knowledge is possible; this would be the Don Quixotism of philosophy. Our plan is to examine the skeptic's objections, in order to see if there be any thing in them to shake the mind's trust in its own power to know. If the objections fail, knowledge will not be proved; but skepticism will appear groundless and irrational.

But this question is a purely philosophic one, and why discuss it in an essay on Theism? Skepticism of our cognitive faculties in general tells as much against one department of knowledge as against another, and universal skepticism is none. Because it doubts every thing, it, in effect, doubts nothing. Being impartially

distributed over all the faculties, it leaves their relative position and rank undisturbed, and decides nothing. The only significant skepticism is that which discredits the higher faculties in the name of the lower; and brings discord into the mind. A skepticism which exalts the senses and the animal, and thus seeks to throw doubt upon the rational and moral nature, is the only dangerous one. The theist is quite content to let the skeptic vapor as he will about the general uncertainty of knowledge, so long as it can be made out that reason, such as it is, supports theism. Reason may be very feeble, and the facts may be very imperfectly known, but if they unite in pointing to theism as the only sufficient explanation of the world, the theist is satisfied. Why, then, burden ourselves with difficulties which are common to every theory of knowledge, and thus run the risk of failing in our gratuitously-assumed task?

Theoretically, these objections are well taken; but, practically, another course is more promising. Philosophic skepticism is impotent, except in moral and religious discussion. Elsewhere daily contact with reality and the imperative needs of life make real skepticism practically impossible. Busy men turn their backs on it, and answer it by walking away. But it is both wonderful and instructive how the objections are brought out when discussion touches on moral or religious questions. Points, which in daily life would seem pedantic or foolish, are made with the emphasis of conviction and the zeal of a new discovery. After swallowing the camel, the gnat is carefully strained out; and, once in

awhile, even conscience is invoked against the impiety of ready belief. In an age of dogmatism religion is impossible, because we know too much. According to the dogmatist, there is nothing but matter and force in the universe, with no room for God or ghosts. In an age of skepticism religion is impossible, because we know too little. The reason is unimportant, if only the conclusion be reached. No matter what form the ravings of speculators may take, religion is sure to be beaten. No matter what the speech treats of, it is apt to end with—"Carthage must be destroyed." Theism, then, has a practical interest in examining the skeptic's arguments, such as none of the sciences have. We further reply to the objections of the preceding paragraph, that our purpose is not so much to solve the general difficulties of knowledge, as to show that they are general. Volition cannot be argued with; but it is worth while to show a candid objector that the difficulties at which he hesitates, are no greater than others which he accepts. The lack of logical and philosophical training frequently results in the imagination that metaphysical difficulties are found only in Natural Theology. It is of service to such a one to show that these difficulties underlie all the sciences, and even logic itself. We reply finally to the objector, that it is not our purpose to give an exhaustive theory of knowledge, but only to clear up the subject a little by some criticisms and definitions. The chief difficulty of the question lies in the fog which envelopes it.

The prevailing agnosticism is not speculative, but practical. It does not arise from any psychological

study, but solely from the necessity of avoiding certain disagreeable conclusions. It prevails especially in scientific quarters. Physics is pushed up to the verge of atheism and materialism, and then a halt is called. To save trouble, agnosticism is adopted as a compromise. Hence the dualism of agnostic treatises. They give us atheism and materialism for subject and predicate, but omit the copula. The evilly-inclined reader supplies the omission. Along with the atheism go divers expressions of awe at the all-pervading wonder, and the mystery of the molecule. These men are not to be blamed. Their inconsistency is based on the need they feel for supplying some foundation for morals and religion. One must admire the motive, even in criticising the outcome. But the dualism is apparent, and its worthlessness is equally plain. Moreover, their agnosticism appears only upon occasion. It is when dealing with an opponent's views that it becomes prominent. We have made a careful study of the works of leading agnostics, and have never detected the slightest indication of conscious ignorance. On the contrary, the zeal of conviction and the dogmatism of infallibility, are every-where apparent. They publish long theories of things, and appear to have great confidence in them, although things are declared unknowable. They invest the fundamental reality with various attributes, after declaring any attribution unallowable. This fact makes the study of their works vanity and vexation of spirit. The results of compromise, their works have all the hodge-podge character of compromises in general. We must not charge the writers with the unparalleled inso-

lence of assuming that their opponents only are incapable of knowledge; we must rather refer their views to the logic of the situation. There was need of a reconciliation between science and religion; accordingly they destroyed both, and called it peace. Meanwhile, if pressed by hard questions, they have but to wave the wand of the unknowable, and the difficulties disappear into chaos and impenetrable night. This convenience is an additional argument. The theoretical foundation is the weak part. We know only phenomena is the magic word. But what is it to know? What is a phenomenon, and what is its relation to its noumenal ground? Can one phenomenon know another phenomenon? If not, can a group of phenomena know another group? Or is there knowing only, without a knower and a thing known? These are interesting questions, and a little light on them would be a boon to the student. Unfortunately the average agnostic seems never to have dreamed of them. This vexatious state of the argument comports so ill with their confident declarations, that we must assume that here, as elsewhere, wisdom is justified only of her children. To attempt to get any exact meaning from the current expositions of agnosticism would only lead us to the conclusion that the doctrine itself is the true unknowable. We attempt, then, to examine the skeptic's argument for ourselves.

Unless we know what knowledge is, how can we tell whether we have it? Plainly a definition is called for, and we give it as follows: knowledge is the certainty that our conceptions correspond to reality or to

truth. By reality, we mean any matter of fact, whether of the outer or inner world. By truth, we mean rational principles. By certainty, it is plain that we cannot mean any thoughtless assurance, but only that which results from the necessity of the admission. Rational truth is seen to be valid every-where and always; and as the result of this insight, it is said to be necessary and universal. Both of these terms are misleading. Necessity is often interpreted as if it represented only a habit of the mind, or, at best, the outcome of the mental constitution. In this way color is given to the notion that, by altering the mental constitution, truth itself would be altered. This notion is without any warrant in experience. There is nothing to indicate that truth depends on any arbitrary make of the faculties which recognize it, instead of on its own clearness and self-evidence. Universality, again, is often understood to mean consciously present in every mind. This mistake has kept the empiricists at work ever since the time of Locke, hunting in the minds of babies and savages for failing cases of universal truths. The self-evidence of the truth is its fundamental support. The test of necessity has only the negative value of preventing us from deceiving ourselves as to what is self-evident. When we go carelessly to work, we may easily mistake the customary for the unquestionable; and then we can right ourselves only by setting up the contradictory of the proposition. In this way we detect the influence of habit, and remedy the results of loose analysis. The universality, means only that rational truth is not conditioned by space or time, or

aught else. Our knowledge of it may be conditioned by ignorance and stupidity; but the mind does not make, it recognizes, the truth. When the mind has this clear insight into a principle, so that it is seen to be self-evident, and its untruth is impossible, we call the result knowledge.

Our knowledge of things consists, (1) in the certainty that they exist, and (2) that they have certain attributes or ways of working, and certain relations among themselves. When we reach any such certainty about a thing, we have a knowledge of the thing to that extent. This knowledge may be more or less, but its extent is indifferent to the definition. It is conceivable that other beings should have deeper insight into the nature of things than we have, but in such case their knowledge would not be more real, but more exhaustive, than ours. But even their knowledge would come under the same definition—the certainty that things exist and have certain properties and powers. A large part of the skeptic's argument consists in referring to the vastness of the unknown in comparison with the known. He points out that we do not know the inner nature of things, nor how things are made. We grant all this, but insist that we know sundry truths about things after they are made. The scientist does not pretend to know how the elements are made, but he claims to know something about their ways of working. Our knowledge of the soul does not consist in any insight into the soul's being, but only in the certainty that souls exist, and have peculiar assignable powers. Neither science nor philosophy has, or is likely to have,

any recipe for creation. The utmost the finite can ever hope to do, is, not to create things, but to understand them after they are created. When reality has been comprehended under the forms of thought, science and philosophy have finished their work; and the result we call knowledge, as far as it goes. If this is not knowledge, what is? References to the mystery of being, and the vastness of the unknown, are quite irrelevant in discussing the reality of knowledge.

The statement that the reality of knowledge is independent of its extent, deserves further emphasis. It has been strangely enough assumed by both believer and skeptic, that the reality of knowledge can be maintained only by proving that all perceptive beings must see all things alike. Of course such a proof is forever impossible, and the skeptic wins an easy triumph. But this question, also, must be ruled out as irrelevant. The point is not whether other beings see things as we do, but whether the powers and relations which we find in them are really there, independent of our thought. Touch is not contradicted by vision, though each gives some elements which are impossible to the other. The question whether angels or animals see things as we do, is a perfectly idle one. Sextus Empiricus based a skeptical argument on the fact that cat's eyes have oblong pupils, while men's eyes have round pupils. It will probably be impossible for us to tell how cats view things until cats become able to think or speak, or until we become cats without losing our human faculties. Both events seem quite unlikely, and the advance of knowledge in that direction is barred. The attempt to

find how angels, or some hypothetical beings, may regard things, appears equally hopeless. Be it far from us to say what such beings might see and think. All such suggestions are irrelevant, unless it be claimed that their knowings contradict ours; and in that case we should ask what ground there is (1) for assuming that these hypothetical beings are real; (2) for saying that their knowledge contradicts ours; and (3) for assuming that, in case of contradiction, these imaginary beings must be in the right? The last assumption is plainly gratuitous, for they would not contradict us any more than we should contradict them; and hence, after all, we should have to decide the question by appealing to our own reason. Although this fashion of appealing to imaginary beings, in the interests of skepticism, has the support of Descartes, it must nevertheless be regarded as unworthy a rational being, because it is both gratuitous and indecisive.

The fact that the reality of knowledge is independent of its extent also contains an explanation of the pretended antithesis of absolute and relative knowledge. This antithesis has no meaning from the side of the subject. For the knower, there is either certainty or uncertainty concerning a fact or proposition; and he may either know it to be true or false, or he may believe it to be true or false, or he may be in doubt concerning it. These are the possible mental states of the knower, and for him the distinction of relative and absolute has no assignable meaning. We must, then, seek the meaning of the distinction in the object; and here we come upon the following fact: We know things only

in relations either to ourselves or to other things. This perfectly true statement is, then, illicitly transformed into another which is entirely different, namely, that we know only relations. When something is known to exist as this or that, relations may also be known to exist between it and other equally known things; but that we should know the relations of essentially unknown objects is a contradiction in psychology. Knowledge may go deeper and deeper, but so long as the word represents any thing intelligible, it will always consist, not in being the thing known, but in forming conceptions about the thing. Such a deepening of knowledge would not displace what we know, but only extend it. Even in the realm of rational principles, it is possible that our knowledge does not reach the ultimate. They lie in our mind as mutually independent data. The law of identity, or of causation, carries with it no necessity that the mind should also have an intuition of space. The understanding is conceivable apart from the moral nature. This mutual independence in our experience leads the mind to surmise that in the ultimate ground of being there may be an interdependence of these principles, so that all may flow from one root. German philosophy has made great efforts to show such a relation, but the success has not been great. But if such a relation existed, it would not in any way affect the validity of rational principles: we should only have a deeper knowledge. Theoretical mechanics has advanced through successive generalizations until the whole science is reduced to an interpretation of a single principle; but no knowledge is dis-

turbed by the advance. In like manner, if space were found to be only a form of manifestation, our knowledge of space would remain just as it is. The science of space relations would continue to be valid: we should only discover that there is something deeper than space, and not that space is delusion. The current thought that the ideality of space implies that space is merely a human delusion, is one of the many misunderstandings found in the popular speculations. That doctrine denies that God is limited in any way by space, as if space were a thing like other things, but it does not deny him a knowledge of space relations, as if something in the world of the thinkable were unknown and unknowable to the Source of all thought and knowledge.

Again, with regard to things, a deeper knowledge does not discredit real knowledge. If it should turn out that the chemical elements are compound, it would leave our present knowledge where it is. A profounder insight into their structure would not overturn their known laws. Where, then, is the opposition between absolute and relative knowledge? The true antithesis is that of more or less, and not that of relative and absolute. Absolute knowledge is greatly to be desired, and its unattainability is a great loss, no doubt; but still a large reward might be safely offered for any definition of it which would not reduce either to an unintelligible chimera or else to exhaustive knowledge. But no one ever claimed an exhaustive knowledge of any thing for any finite mind. Every thing stands in infinite relations to the rest of the system, and only

Omniscience could know a thing through and through. Even a simple number, as two, can be formed in an indefinite number of ways; so that no finite intelligence could possibly exhaust its relations. Here the relativist will break out, that this is only a knowledge of relations; and we reply, that it is not a knowledge of relations, but a knowledge of real things in actual relations. If he adds, But I want to know what the thing is in itself; the reply would be, It is that substantial something which is capable of sustaining those relations. He can next ask, But how is it capable? This is to demand how reality is made; and this is an idle question. Or he can further object, All our conceptions of things are built up by telling, not what they are, but how they act, or what they do, etc. This objection was made very much of by the Greek skeptics. They urged that we are shut up to the phenomena of being, and never reach the knowledge of being in itself. A sufficient answer is, that the demand to know what things are in terms of something besides their essential attributes, is either a demand to know how things are made, or else it is utterly unintelligible. In either case it is irrelevant in discussing the validity of our present knowledge.

Here the phenomenalist appears, and expresses his delight at finding us agreeing with him in rejecting all ontological and noumenal knowledge. The truth, he says, on which all great thinkers are agreed, is, that knowledge is only of phenomena. Here, again, we have a truism converted into a falsism. The truth that we know things only through their appearances or mani-

festations is quietly changed to read that we know only appearances; and thus the possibility of real knowledge is once more ruled out. But, in fact, there is sad confusion in the use of these words. A phenomenon, or appearance, implies two factors: (1) something which appears; (2) a mind to which it appears. Properly speaking, phenomena do not exist apart from the mind; and they have mental existence only in the moment of perception. In strictness, then, a phenomenal universe is the creation of the mind, and vanishes with consciousness. But it rarely happens that the phenomenalist ventures to regard the objects of knowledge as merely modifications of ourselves, although this only would be strict phenomenalism. No one can persuade himself that the solar system is only a subjective affection, or that the force of gravity is but a relation between ideas. It would be quite impossible to regard a fierce dog who was making suggestive advances as anything like a state of self. This difficulty leads to another definition of phenomenon. In this second stage, a phenomenon is entirely objective to the mind, and means only a particular mode or manifestation of reality. But, as thus used, it has a double meaning. Sometimes it means just what common sense means by thing; and sometimes it means just what common sense means by attribute. The first meaning is well illustrated by what Spencer calls "relative reality." In his system there are, (1) an absolute reality; (2) a relative reality; and (3) our knowledge of this relative reality. This relative reality is declared to be as real as the absolute reality; in short, his relative realities

are things as they exist for science and common sense; and these we are allowed to know. Here every thing is phenomenal except fundamental being. This view is a reproduction of the Platonic doctrine, that only the independent truly is. Closely allied to this view is another, based on a double meaning of thing. By thing we may mean a metaphysical unit, or we may mean a composite of such units. Now, according to the atomic theory, none of the things we see are metaphysical units, but are compounds. Advantage is taken of this double meaning to call composites phenomena; and then our knowledge is said once more to be only of phenomena. But such phenomena are properly modes of reality; and our knowledge of them is objectively valid. The ocean is not a phantom, because water is a compound and not an element. Again, phenomenal knowledge is often identified with the product of sense-perception, and the denial of noumenal knowledge is intended to limit us to the things we see. This is a fantastic mixture of sensationalism and the crudest common sense, and is as fatal to science as to religion. It denies the possibility of knowledge through inference; and thus reduces all scientific theory to cobwebs of the brain. But in most cases a phenomenon is simply an attribute; and the claim is, that we can know being only through its attributes or manifestations. This is a truism. The notion that thereby we suffer any loss, is based on an unreal separation between a thing and its properties. We never know properties alone, but a thing as having properties. Then, misled by our tendency to mistake abstractions

for things, we gather these properties into a phenomenal thing which we know, and contrast it with a noumenal thing which we do not know. Thus, back of the conscious soul we plant a noumenal soul, and mourn because we cannot know it. Or, back of the thing we know, we fancy some thing in itself which obstinately refuses to come into knowledge. But all this is delusion. The conscious, active soul, or the thing which is known to exist in certain relations, or to have certain properties, is all there is to know, unless we raise the idle question, how reality is made. In any other sense the thing in itself is as empty an abstraction as ever imposed on men. The phenomenalist may urge that the properties we attribute to things belong to them only in relations to ourselves; but this is true only for sense-qualities, and these are but a vanishing fraction of their qualities. Things are defined in general not by their relations to ourselves, but to one another. We conclude, then, that if there is any thing in objects and their relations which we recognize or infer, and do not make, the knowledge of that something is absolute or noumenal in the only intelligible sense of these terms. It is also plain that phenomenal as applied to knowledge has no definite meaning and can only lead to confusion. We repeat our definition of knowledge. Knowledge is the certainty that our conceptions correspond to the fact or truth.

With this definition, we pass to consider the skeptical objections to the possibility of knowing. It is manifest that a skepticism which should deny all certainty,

subjective and objective alike, is suicidal; for it can make out its case only by assuming the validity of the laws of thought, and the general testimony of consciousness. If the skeptic question these, he must be content with a purely dogmatic skepticism, without reason and without proof. He may not even say of any proposition that it is not proven, or does not follow from the premises, without assuming valid principles of proof. If there are no such principles, one thing follows as well as any other. Hence, not even the universality of error can be affirmed without admitting the reality of truth; for error is meaningless except as being a departure from the truth. This unprincipled skepticism has, indeed, appeared in the history of philosophy; but its self-contradictions are so great as to call for no consideration. Mere whimsies must not be encouraged to think of themselves more highly than they ought to think, by a too elaborate refutation. Most of the objections of the Greek skeptics are of this sort. They either impress the modern thinker as puerile, or they represent a theory of perception long since abandoned.

The more common form of the skeptical argument does not question consciousness as revealing subjective states, and does not deny that there are certain subjective necessities of thought. We must, for instance, reason according to logical laws ; we must admit the reality of the external world, and the reality of causation. All this the skeptic readily allows, and concludes that knowledge is uncertain on that very account: for while we admit that there is truth, we are only too sure

that there is error; and who shall say that these necessary affirmations do not belong to the side of error? The history of this form of skepticism is very interesting. The early philosophers opposed to skepticism the doctrine of innate ideas, or laws of our faculties, which compel the mind to act in certain ways. But by and by it was urged that the fact that an idea is necessary to the mind does not prove its objective validity; and then the doctrine of innate ideas, modified into the Kantian doctrine of mental forms, became the basis of the most subtle and formidable skepticism possible to philosophy—May we not, by a law of our nature, be held back from the truth? This question includes the doubt of Descartes on the basis of an imagined devil, and also all the skepticism which has sprung from the Kantian philosophy.

This doubt divides into two: (1) a doubt of the validity of rational principles; and, (2) a doubt of the trustworthiness of external perception. We shall find it advantageous to consider them separately.

The skeptical argument against the truth of rational principles takes on two forms: One form seeks to show that if we allow them to be true, and then develop them to their logical results, we find the reason contradicting itself. This is the only method which could be decisive. If the mind could be involved in insoluble contradiction with itself, the result would be to cast discredit on all our faculties, and reduce intelligence to the scale of practical life. It is commonly supposed that Kant did this in his "Critique of the Pure Reason," and especially in his famous antinomies. But it is not only a mistake

to say that he did it; it is also a mistake to say that he meant to do it. Kant never proposed the question: Is reason trustworthy? His inquiry was the entirely different one: Where is reason trustworthy? This question no more implies a distrust of reason than an inquiry into the limitations of mathematics implies a distrust of mathematics. Kant appealed to reason to set its own limits, and to declare those limits reasonable. Yet even Hamilton charges Kant with making reason self-contradictory. Blunders of this sort are no longer excusable. Kant claimed simply that the reason, in its spontaneous and unreflective activity, is the source of illusion, just as unreflecting common sense forms theories of things which disappear at the first touch of criticism. But Kant also claimed that reason, when reflective and critical, is able to discern and correct its unthinking errors. The very antinomies to which appeal is made, prove that Kant did not regard the reason as divided against itself; for he claimed that they result from a wrong or careless use of the reason; and he also claimed to have solved them by showing that the thesis and antithesis in each antinomy are, at the worst, only contraries and not contradictories. So much for Kant's skepticism on this point. We will only add, that it is by no means necessary to adopt the Kantian distinction of noumena and phenomena in order to see that the argument for one member of the antinomy is always inconclusive, and often bristles with paralogism. A little patient reflection will suffice for this insight.

Since Kant's time, some who thought they were following him, have attempted to show that the mind does

fall into inevitable and insoluble contradictions. Hamilton only established the harmless theorem, that of contradictories both may be equally incomprehensible, and not that both may be established with equal cogency. The most notorious of these attempts is that of Mansel, who claims that the mind insists on regarding the ground of the universe as first cause, absolute and infinite. The entire argument rests on playing with the etymology of the words, and ignoring their philosophical content. The argument has been reproduced, without improvement, in the philosophy of the unknowable. In sound philosophy, the first cause, the absolute, and the infinite, all mean only that independent being upon whom the conditioned world about us depends. But etymologically, the infinite may mean the all, and the absolute may mean the unrelated. Hence arise many puzzling and profound questions. How can the finite coexist with the infinite, when the infinite must be the all? How can the absolute be a cause, since the absolute is the unrelated, and a cause must be related to its effect? These difficulties disappear as soon as we abandon etymology and attend to the philosophical meaning of the terms. These attacks on the consistency of reason have a slight pedagogical value in furnishing the teacher with examples of various logical fallacies; but they certainly have no philosophical significance.

To the same class must be reckoned the attempts sometimes made to discredit our simple, geometrical intuitions, by the doctrine of a space with more than three dimensions. Helmholtz, in an exposition of the doc-

trine, imagines beings living on a sphere, and assumes that they are capable of motion only along the surface of the sphere. Now, if we further assume that our notion of space is generated by experience alone, it would follow that these beings would never get the notion of a space of three dimensions, but only of such a space as is represented by a spherical surface. Hence their idea of space and their geometry would differ from ours. For them the shortest distance between two points would be an arc of a circle, while for us it is a chord. Two straight lines would inclose a space; and they would be just as sure that they can inclose space, as we are that two straight lines never can inclose space. Hence it was concluded that our geometry is only of limited validity. The feebleness of this conclusion is quite extraordinary, as a scanty amount of definition would have made it impossible. Under the supposed conditions, space would be the surface of a sphere, and the shortest distance between two points in such a space would be what we mean by the shortest distance between two points on the surface of a sphere. That the imaginary inhabitants should declare such shortest distance to be an arc need not surprise us, for we say the same thing. Indeed, all the conclusions drawn by these people, are simply the conclusions of our own geometry with regard to spherical surfaces. But because both propositions are about two points in space, advantage is taken of the common term to forget that in one proposition space means our space of three dimensions; and in the other it means only the surface of a sphere. It would not be surprising if such

splendid play secured an overwhelming triumph. The doctrine of a curvature of space, and of a space of $n$ dimensions, is based on similar pettifoggery. When we say that parallel lines will never meet, or that two right lines can never inclose a space, we are told to remember that space may have a curvature, so that every line shall return into itself, or perform some other feat. In reply, we ask what is meant by a curvature of space? Lines and outlines may be curved in space, but no one can understand any thing by a curvature of space itself. To mean any thing intelligible, this doctrine must only say that there are no absolutely straight or parallel lines, etc.; but the geometrician does not say that there are. He merely says that if such lines exist, they will not meet. A curvature of number, so that by adding unit to unit we should finally come back to unity, is just as rational a notion as that of a curvature of space; so that by always going on in a straight line, one should finally come back to the starting-point. The talk about a space of $n$ dimensions is either equally empty or equally unintelligible. The facts concerning this notorious doctrine are these: Algebraic analysis is independent of synthetic geometry; and as long as we confine ourselves to abstract symbols we are not limited to any number of co-ordinate axes. Further, it is found that when there are no more than three axes, the analytical expressions can be geometrically represented by lines, etc., in space. Now, nothing is easier than to say that if space had $n$ dimensions, then an expression involving $n$ axes of reference could also be geometrically represented. Of course it could. If space had $n$ di-

mensions, it would have $n$ dimensions. But to conclude from this fact that real space may have $n$ dimensions is not reasoning, but a pitiable logical grimace. The simple fact that $a$ can be represented by a line, $a^2$ by a plane surface, and $a^3$ by a cube, while $a^4$ and all higher powers cannot be geometrically represented, is as good ground for believing in space of $n$ dimensions as any thing which is offered in support of the notion; for we can always say that if space had $n$ dimensions, then $a^n$ could be geometrically represented. The analytic forms which arise from the assumption of hypothetical spaces are often very interesting, and give rise to most curious conclusions as to what would be true in such space. For example, it is said that in a space of four dimensions a sphere could be turned inside out without rupture, but a knot could not be tied. And as analytics is independent of geometrical representation, there is no objection to such assumptions so long as they are not mistaken for reality. But, by sheer force of talking about spaces of $n$ dimensions some writers have come to believe that the expression represents a possible existence of some sort, instead of being merely analytic assumptions. An extended algebra of imaginary quantities is possible; but that does not prove that the quantities are not imaginary. We know one real space of three dimensions, and we know no other. What may be meant by a space of $n$ dimensions is utterly unintelligible. The thought escapes and defies all construction. It is not a thought, it is a phrase. The man who utters it has not said something; he has merely made a noise. Common sense must defend itself against

such imposition by demanding that a phrase represent a construable thought as well as a combination of letters or sounds.

The attempts to prove that reason is essentially self-contradictory, have never proved any thing but the philosophical incompetency of those who made them. It is very easy to find contradictions in the spontaneous metaphysics of common sense; but reason itself always suffices to detect and correct such errors. In the failure of this method, the skeptic adopts another. He next claims that rational principles cannot be proved even in the mind; still less can they be proved to have objective validity. He admits that they must control our thinking, and that we cannot conceive them false; but he urges that this proves only a subjective necessity, and does not prove an objective necessity. He suggests, therefore, that these principles do not hold for the external world, or for what he is pleased to call "things in themselves."

This skepticism seems fair and rational; let us look at it more closely. And first we examine the demand for proof of first principles. If by proof the skeptic means deduction, it is clear that he is right in saying that rational, or first, principles cannot be deduced, for deduction implies something more fundamental than the conclusion. Since Jacobi wrote the Faith Philosophy, there is no reason for calling this truism a discovery. But if the skeptic means that what cannot be deduced is, therefore, uncertain, we shall find it necessary to inquire what proof is. Now the essence of

logical proof consists in so combining propositions which we know, that we finally see some other proposition to be a necessary admission, which was not seen as such before. That is, we reach a feeling of certainty in affirming the proposition which we did not have; and then the proposition is said to be proved. But the essence of the proof consists in just this certainty, and not in the number or nature of the steps taken. If now the proposition should be directly seen at the start to be necessary, we should need no proof: (1) because we should have the essence of proof—the feeling of certainty; (2) because the longest argument could give us nothing more than this feeling; and, (3) because the certainty arising from a logical demonstration can never be greater than that of the principles on which it rests. If the mind is able to see some truths to be self-evident, or to know some things without a process, it is mere logical pedantry to demand further proof. It is more than pedantic; it is absurd. The self-evident, in its very notion, is that which is able to stand alone. To demand proof of it is to declare that it is not self-evident. It is plain that the ultimate test of truth must be the mind itself, and its faith in its own power to know. The skeptic is unwilling to admit the dicta of reason, and insists on having their validity in some way established. But it is plain, again, that these dicta can be tested only by assuming some more ultimate dictum as a standard; and this final standard, can be known as such only by the self-evidence with which it appeals to the mind. But the demand for proof can be repeated here with equal justice, and the same sense-

less round might be renewed forever. The skeptic's demand for proof, beyond the feeling of self-evidence and certainty, is one which in its very nature cannot be met by any intelligence whatever. Angel or archangel would be in exactly the same condition as we are, in this regard. The skeptic is commonly supposed to be of all men the most acute, but surely there is nothing very brilliant in making an irrational demand, and then triumphing because it has not been met. When asked, then, for the ultimate warrant of rational principles, we do not hesitate to declare it to be reason itself. Whatever appears as truly self-evident and necessary, the mind will always feel justified in regarding as true. It is clear that it must come to this at last, not only for human intelligence, but for all intelligence. Every rational being must at bottom trust his rational insight. To call this a circle, and quibble over it, is mere pettifoggery. The trust of the mind in itself can be shaken only by showing inconsistency in its intuitions. The complete test of truth, then, might be stated as self-evidence and necessity at the beginning, with consistency in the outcome. The skepticism which is based upon contradictions in details, is rational and valuable for details, and the course of the mind in such cases is to go over its work in the light of rationality, and bring the warring details into harmony. But a skepticism of reason itself, based, not on inner contradiction, but solely on the possibility of verbal denial, is something which busy and sincere men may justly ignore. To ask some questions is a proof of mental power. To ask some others is a proof of mental weakness and confusion. To the

latter class belong all skeptical demands for proof of rational principles.

But the skeptic rejoins, that if the rationalist's argument were allowed, it would only prove the subjective, not the objective, validity of these principles. He declines, therefore, to believe that they are objectively valid. It is plain that a skepticism of this sort is forever irrefutable, resting, as it does, solely on the possibility of stating a verbal doubt. Whatever objective necessity there may be, can appear in the mind only as a subjective necessity, an impossibility of thinking otherwise, etc., and even objective reality exists for us only as it is conceived. We can test the value of this objection by applying it. A straight line is the shortest distance between two points; things respectively equal to the same thing are equal to one another; every event or change must have a cause. The rationalist says, that such principles are as valid for things as for thought; but the skeptic objects, because the necessity with which they appeal to the mind produces only a subjective necessity of admitting them; and a subjective necessity is no proof of objective fact. It is evident that reason runs no serious risks from attacks like these, for while the doubt is forever possible, it is forever equally baseless and barren. It appeals not to reason, but from reason, and may rightly be left to its own irrationality. One grave disadvantage of language is, that it allows men to speak without saying any thing. There is no difficulty in framing such phrases as square circle, straight curve, causeless events, and the like; but there is a strict impossibility in thinking any thing under them. We are

persuaded that skepticism would play a much less prominent part if the skeptic were forced to make his hypotheses intelligible. This he always neglects to do, but furnishes himself rather with phrases which cannot be construed in thought, as if the first demand upon a hypothesis were not that it be at least thinkable. When Mr. Mill suggested that two and two may make five in some other world, it was an oversight not to tell us why five, instead of fifty, or five thousand, or three only, or even nothing. We are clear that in the same world four might equal five. It might also equal three. It might equal any thing. It might also equal nothing. Indeed, every thing might equal any thing and nothing at the same time. Any of these propositions are just as rational as the far-famed one of Mr. Mill. Unfortunately, a certain half-heartedness on Mill's part leaves us in doubt as to whether his proposition is any thing but a truism expressed in a most extraordinary form. He was not quite prepared to deny the law of identity, or A=A. Hence, four equals four, and five equals five, but four does not equal five. But as two and two do equal four, and four is not five, it follows that the five which in some other world they equal, is not five as we understand it, but is really what we mean by four. Either this fantastic platitude, or else the law of identity, must be abandoned. But here, again, we are puzzled by the fact, that at times Mill seems to have meant by five what we all mean by five; for he quotes approvingly the hint of a barrister who suggested a way of conceiving that two and two should really make five. The barrister said, that if there should be some law of

association whereby, whenever we add two and two, an additional unit should be suggested to the mind, then the sum of two and two would always seem equal to five. Both Mill and the barrister fail to see that in that case not two and two make five, but two and two plus the new unit. Here, then, it would seem as if Mill meant to deny the law of identity. If a theologian should utter such wisdom, no one would hesitate to pronounce him imbecile; but as no theologian has ever won such glory, let us recognize the utterance as that of a great, and accurate, and candid thinker. It is also suggested by the skeptic that there may be worlds where the law of causation does not hold. We are quite clear that in those worlds things create themselves, and vanish into the void whenever they tire of existence. By hypothesis, nothing produces an event or change, and yet the event and the change do come to pass. They arise from the nothing, and vanish into it. No one can tell whence they come nor whither they go. There is no whence and no whither. Things are and are not, and probably both at once. These propositions again are just as rational as the denial of causation. If reason be repudiated, there is no longer any thing irrational. The one measures the other. The skeptic, then, ought to stop at nothing in the way of absurdity. There is nothing to forbid any notion except reason itself; and as the skeptic has victoriously overcome reason, the road is fully open to any and every whim and superstition. A half-way skeptic is a sorry sight. But the trouble with the propositions we have mentioned is, that mental palsy results from any attempt to construe them

in thought; and as long as this is so, we shall hold that skepticism of rational principles is really credulity or bravado. In either case, it belongs to the department of mental pathology.

But it may be asked, in mitigation of this severe judgment, did not Kant deny that rational principles, which are at bottom only rules of mental action, apply in any way to things in themselves? He did, and thereby destroyed his own system. He first proved that there are forms of thought which are regulative in the mental life. This was his great service to philosophy. Then without any warrant of any sort, he concluded that these forms were not also valid for things. In this way he transcended his own premises, which would never warrant any thing more than doubt. Dogmatic denial is impossible to a consistent Kantian. In this way, also, he made the idealism of Fichte a logical necessity. For the categories he declared to be subjective only. Among these he placed causality and reality. The denial of the former made his "things in themselves" useless. They do nothing; they do not even produce phenomena. Hence they account for nothing, and sink into metaphysical ghosts. By denying the objectivity of the category of reality, we are forbidden to call "things in themselves" real. They are then nothing. Phenomena are the only realities, and absolute dogmatism is reinstalled. In short, one cannot become a Kantian without a "thing in itself," and one cannot remain a Kantian with "a thing in itself." Reason will always revenge itself upon any theory which limits rational principles to subjective appli-

cation, by denying the irrational reality outright. Such a thing is not merely the unknowable; it is more; it is the unaffirmable. It was Kant's subjectivism which produced the absolute philosophies of Germany. The later forms of phenomenalism have been constantly pressed with the same difficulty. By denying that phenomena are proper manifestations of things, and that things can be truly known through phenomena, they have made things unnecessary for the explanation of phenomena; and thus phenomena become the only reality. Consistent phenomenalism must lead to absolutism.

Leaving now the question of principles, we inquire next into our knowledge of things. Since the time of Heraclitus, a knowledge of nature has been declared impossible, because all things flow. Plato, also, says, that since development is the law of the natural, our knowledge of nature can never be more than probable. Indeed, physics recognizes that our knowledge is hypothetical, resting always upon the implicit assumption of the uniformity of nature. But for our purpose it is not necessary to descend to such refinements. The objection of the Heraclitic skeptics is interesting as showing the great difference between ancient and modern speculation. The fact of change or becoming, they held, makes any true statement about things untrue in the next moment; whereas we start with change, and look for its changeless laws. Being, for us, is not a rigid sameness, but a concreted formula of change. But we pass to another point. The fact of an objective reality

of some kind has never been questioned except in word. The true idealist does not deny that something is; he only asks, What is it which really is? Nothing is more common in popular speculation than utter misunderstanding of idealism. Fichte's critics insisted that he regarded himself as the creator of the universe; and Berkeley's critics have, with great fatuity, loudly affirmed what Berkeley never denied. Philosophical apprentices and counterfeit idealists are commonly equally short-sighted. They commonly mistake idea for delusion and individual dream, and land necessarily in solitary egoism. This doctrine really makes the single thinker the universe. All other thinkers are but states or ideas of the first. Which of many thinkers shall be the universe, depends on which begins to think first. Two such talkers meet together, and each reduces the other to states of himself. This is the low farce of philosophy. The only reason such a view can offer in support of itself is, that the existence of any thing independent of the subject, cannot be proved. This has passed, for a long time, as a perfect abyss of philosophic profundity; but it is, in fact, only another case of that logical pedantry which fancies that proof can give any thing more than certainty, or that the certainty of logical proof can ever transcend that of the immediate intuitions on which it rests. It is really mortifying to find alleged thinkers still engaged in peddling these tawdry rags of logical finery, and winning philosophical reputation by the sale. If this view will be logical, it results in solipsism, or the doctrine that the solitary thinker is the universe. If not logical, it belongs to volition rather than reason,

The existence of something independent of the finite knower can never be deduced, but it may be certainly known. It lies in the nature of immediate knowledge that it is incapable of mediation, but at the same time it can dispense with it.

Rational idealism raises no such questions as counterfeit idealism. It never pretends that in self-perception the object is the subject, or that the thing known is also the knower. In every theory, account must be taken of the fact that the world of conceptions is dual, a part being conceptions of self and states of self, and a part being conceptions of objects not ourselves. Rational idealism recognizes this fact and its full significance. It does not question the existence of the world, or its independence of the finite power; but it raises the entirely different question as to the manner of its existence. It leaves the object just as it appears and where it appears. It questions nothing which the senses can give us. It only denies that under phenomena there is any hard, inert materiality as their source and support. But it does not claim that phenomena are produced by an unconscious activity of the knower; it regards them, rather, as resulting from the activity of an omnipresent spiritual being. There are different types of rational idealism, but they all agree in declaring it absurd to posit an object as unrelated to thought, while, as object, it is essentially a complex of thought relations. These views are not well described as idealism; they are properly intellectualism and spiritualism. Moreover, they are less a theory of perception, than a metaphysical doctrine concerning the nature

of reality. And here skepticism appears again. It is willing to admit the existence of things independent of the finite knower, but it doubts whether we can ever know them as they are. We know them as they appear, but who shall assure us that we know them as they are, or that the appearance does not misrepresent the fact? This is the form especially of the relativist's objections to the possibility of valid knowledge.

This doctrine is so multiform in its misconceptions and philosophical prejudices, that it is impossible to give a single decisive criticism. It relies for its defense chiefly upon an illustration, and upon the impossibility of proving a correspondence between our conceptions and their objects. The illustration is taken from the doctrine of sense-qualities. It is a commonplace of psychology that our senses do transform things so as to have no likeness to themselves. All sense-qualities, as light, heat, color, etc., are only subjective affections which resemble nothing external. If we stroll on the moon-lit beach, the moon shines and the waves plash only as we see and hear. We return home, and the moon shines and the waves ripple no longer. All that is left is a vast chaos of waves in sea, and air, and sky, which neither sound nor shine. The eye comes, and the dark ether tides burst into a sphere of light. The eye goes, and there is light no longer. In the psychological sense, light was not made on the first day nor on the fourth day, but when the first rudimental eye appeared. On the strength of this analogy, it is urged that the mind transforms all its objects, so that they can never be known as they are.

The subjectivity of sense-qualities serves to illustrate the skeptic's meaning, but it lends no support to his theory. If one were inclined to be obstinate, he could rightly claim that this subjectivity is incapable of proof. He might insist that things really are colored, etc., and that the various vibrations are only the mechanism by which we learn what the qualities of things are. Still one may allow this subjectivity without admitting the skeptic's notion, for the proof that any sense-quality is subjective, is based entirely on the assumption that we know what the reality is. The physicist says, that the antecedents of sensations are really vibrations of some sort. But if we deny the reality of the vibrations, the proof of the subjectivity of sense-qualities fails entirely. We cannot disprove the objectivity of one set of predicates, without admitting the objective validity of another set. Plainly the skeptical argument from sense-illusion is divided against itself.

Two theories are possible concerning the relation of the mental life to the external world. We may regard the world as something complete in itself, and lying there in reality just as it appears to common sense. In this case the mind is merely a copyist. It contributes nothing; its sole function is to reproduce in thought an exact picture of the external reality. This is the view of unreflecting common sense. Another theory, equally possible, is, that the mental life has a value of its own, and a function other than copying. The mind helps to create the facts it recognizes. The external world is not finished until the perceiving mind appears. It did not exist as it appears to our senses, until sensitive

minds were created. The external reality is but the foundation on which the mental world is built. But the mental world is not an accident; it also belongs to the system of reality. It not only belongs to the system; it is the very summit and crown. Here the skeptics divide. Some innocently assume that the mind is meant to copy reality, and if it does not do this, it is a failure. Every proof that the mind helps create its objects, as in light, sound, etc., they regard as showing the weakness of the knowing power. But this is the vulgarest prejudice of the most thoughtless common sense. Color and harmony, heat and cold, are not delusions, and do not cease to exist, because they exist as such only in the mind. They have all the reality desirable, and our knowledge of them is as valid as it ever was. The average skeptic is in such bondage to common sense prejudices that he cannot see any difference between existence in, and for, the mind, and pure delusion. That the mental life may have a value on its own account, is an unheard-of notion to him. Other skeptics adopt the second theory, that the mind is a factor of all its objects, and conclude on that account that reality is unknowable. The mind contributes much; who can tell how much? The object of knowledge is a composite of external and internal factors, which no analysis will ever serve to separate. We are, then, forever shut out from a knowledge of reality pure and simple.

This claim can never be established, because our conceptions can never be known as false, without assuming that some conceptions correspond to the fact. But

if it could be proved, the loss would not be great. For it reduces to the harmless truism, that we shall always be limited to a knowledge of things as they exist for our intelligence. It is doubtful if the most determined realist would not be satisfied with such a knowledge; indeed, he would be so far from demanding any other knowledge, that he would profess his inability even to conceive what this other, and impossible, knowledge might mean. This alleged reality which is unrelated to intelligence, is not a thought, but a contradiction; or, rather, it is a mental blank, first obtained by canceling the conditions of thinking, and then mistaken for the thing in itself. When thought posits an object out of relation to thought, or one defined only by negative attributes, it contradicts itself. A knowledge of things in relation to mind, or as they exist for intelligence, is all that is possible to any mind whatever. To demand more is to be unintelligible. It is as if one should ask how something feels which is not felt. The skeptic here is really groping to know how being is made, or else he is fretting himself with the thought that things may have properties other than those we perceive; but this is irrelevant to the question concerning the reality of knowledge. Still this answer will hardly satisfy the skeptic, who is sure that the full force of his objection has not been appreciated. Common sense, also, is uneasy for the security of knowledge when it fails to reach the very thing instead of a relation. Who can tell that the relation of the mind to its objects might not change, and thereby knowledge disappear? To this scruple of common sense, the reply is, that such change could only result

from a change either in things or in the mind. If things change, our knowledge ought to change; because its objects change. A change in the nature of the mind, on the other hand, whereby its relation to things should be essentially altered, is an utterly gratuitous assumption. All knowledge of things assumes their constancy. We have no security that every thing will not suddenly acquire new properties and abandon all the old ones. The constancy of intellect is at least no more violent an assumption than the constancy of external nature. But we return to the skeptic's claim, that reality can never be known, because the mind modifies its objects.

This doubt, when universal, depends on overlooking the distinction of thought-knowledge and sense-knowledge; and yet all doubt which is not purely gratuitous rests upon this distinction. From the dawn of speculation, it has been recognized that the world as it appears to sense, is not the world as it appears to thought. In the ancient speculation they were regarded as in opposition; and the early skeptics made the most of the contradiction. But a truer theory of perception shows that the senses give affections of self; and that all perception is by the mind itself. There is no perception until thought-elements are introduced into sensations, or until sensations are built up into a thought-system. In this way the mind reaches a world instead of a chaos of subjective impressions. The world of appearances, and even the "phenomena" with which the skeptic conjures so mightily, are so penetrated with rational elements, that they often amount to what common sense understands by things. The senses do not give us

things, causes, space, time, number, relations. These are the metaphysical data of the mind, which alone enable it to pass from subjective sensations to a world of reality. Grant, then, that the senses give us only sensations, and that sensations are only the effects which things produce in us; grant, also, that these sensations are totally unlike their causes; still it will not follow that the thought-elements of perception are also only subjective. The distinction between the elements of sense and those of thought is so patent, that it is unpardonable to overlook it. The impressions of sense furnish the data for a thought-construction; and this the mind supplies by referring them to things as their causes. These things, again, are differentiated in quantity, quality, space, time, and number; for the difference in impressions points to corresponding differences in things. Law, or regularity in the impressions, points also to law and regularity in things. Thus there arises in the mind the conception of a world of real things, having relative permanence and power, and in various relations of interaction, co-existence, etc., with one another. As such they are quite independent of the finite knower; for they exist for all alike, and we are helpless in their presence. We recognize; we do not create. The knowledge thus gained, represents the fact without misrepresenting it. The further question, whether these things may not be products of an all-embracing activity which manifests itself in all things, is irrelevant here. We know things, however produced, and however compounded, as having relative permanence, as having certain properties, qualities, or powers, and as being in

certain relations. And we further know that the mind does not make these qualities, relations, etc., but recognizes them. They are independent of our knowing. The other questions, as to the mode of things' production, or their relation to the infinite, are metaphysical ones, which are for us insoluble, but which must not be confounded with the theory of knowing. The creative, or modifying action of our minds in knowing, must be limited to sense-qualities. There is no hint in experience that the rational relations and elements which we seem to find in things are not really there. The reason is evident. These rational factors are the frame-work of our mental life, and enter into all our mental operations. It is not so with the elements of sense, they do not belong to rationality.

But the doubt is raised, how can it be laid? The skeptic adopts our own language as his best justification. Because the categories of thought are the frame-work of our mental life, we can never escape them; and who shall assure us that they are also categories of fact? The jaundiced eye must see all things yellow, no matter what their proper color. The kaleidoscope imposes a form on its objects whatever their own shape. The skeptic, so far from ignoring the distinction of sense and thought-knowledge, bases his skepticism on the universality of the latter as compared with the former; for while he allows its universality, he also affirms its subjectivity. This brings us to close quarters with the problem. A groundless skepticism is irrational. Being groundless, it is forever possible, and forever irrefutable; but being also irrational, it should be left to its

own irrationality. Now the mind cannot deal with the external world without applying its metaphysical notions of thing and quality, or of substance and attribute, of cause and effect, of space and time, of quantity and quality, of unity and number, of likeness and difference, etc., and the mind affirms with absolute certainty that these categories apply to things. The denial of their validity leads necessarily, as in the case of Kant's philosophy, to a denial of the thing. To affirm something which is neither active nor passive, substance nor attribute, neither one nor many, without quantity or quality, etc., is, so far as thought is concerned, merely to make an inarticulate noise. Now the skeptic should show some ground for his doubt. He cannot show any contradiction which results from allowing their objective validity of the categories. He cannot show any reason for affirming the existence of any "thing in itself," if the categories are denied. He can only claim that their objective validity cannot be proved. If this were true, it is perfectly clear that it cannot be disproved. Strangely enough, the relativist and phenomenalist have rarely failed to become negative dogmatists. Not content with doubting the objective validity of our conceptions, they have also denied it. The contradiction of this position is evident. Before I can rationally deny the correspondence of my thought with reality, I must in some way be able to compare my false thought with the truth of things. I must always have a true knowledge of things before I can declare my knowledge false. This is the contradiction into which all modern systems of relativity have

fallen. The largest conclusion which reason can ever draw is, that our conceptions may not correspond to the fact; and this conclusion is based upon the impossibility of proving a correspondence. But this is to fall back into the logical pedantry of which we have so often complained; for though it may not be deduced, it may be certainly known.

In this demand for proof, again, the skeptic mistakes the nature of the case. He has such a habit of asking for proof, that he calls for it even when the demand is irrational. Things themselves can never enter the mind, and the mind can never transcend its conceptions of things. We have, and can have, no other mental content with regard to things than the conceptions which arise in the mind concerning them. But this is the case, not only with our intelligence, but with all intelligence. So long as knowing means any thing intelligible, it consists in forming conceptions of things and their relations; when it does not mean this, it means nothing. There can, then, be no proof of the correspondence of thought and thing by comparing our thought with the thing, and for the simple reason that the thing exists for, and in, the mind only as it is conceived. This is as true for an infinite intelligence as for a finite one. Proof by comparison is more than absurd; it is a contradiction. The only proof which the nature of the case admits of, is the feeling of necessity or of fact, which attends knowledge, together with the inner harmony of our experience. No other proof is possible, even to omniscience. Neither the skeptic nor the every-day realist can grasp the principle that we can never transcend our conceptions, and

that reality can exist for the mind only as it is conceived. Both are haunted by the notion that things may somehow turn up in thought and discredit our conceptions. But it is clear that all the skeptic can justly claim is, that our conceptions may yet fall into contradiction. We reply, that doubt should be postponed until then. As long as our conceptions are forced upon us and are mutually consistent, doubt is gratuitous.

To estimate the force of this no-proof objection, let one ask himself how he knows that he is not standing on his head, or that he exists, or that he is not in some other place than where he is; and then let him further ask himself how much patience he would have with the suggestion, that his conception of the fact does not guarantee the fact. We offer the whole body of physical science in illustration of the possibility of valid knowledge. The discoveries of the physicist and the chemist are real discoveries. If it be said that physical science deals only with phenomena, the reply is, that it deals with the phenomena and relations of things. We have previously referred to the confusion in the use of the word phenomenon. The claim that we know only phenomena, is either the truism that we can never transcend our conceptions of things, or else it means that our conceptions misrepresent the fact. To say that we know things only as they appear is a harmless commonplace, unless it mean that things do not appear in their true nature and relations. In the latter case, we shall ourselves be skeptical of skepticism, until some good reasons be given for this dogmatic statement. It would be hard to persuade the astronomer, or the physicist, or

the chemist, that the relations, and properties, and laws which he discovers are the creations of his own fancy. Indeed, it would be hard to get him to listen to such a claim, unless patience had had its perfect work.

What our general doctrine is, will best appear in an illustration: A desk is before us of certain form and properties. It has certain relations to other things in the room, and to the entire system of things. Of noumenal and absolute desks we know nothing, not even that they exist; but this real desk before us exists, and we claim to know certain of its properties and relations. They are not creations of our mind, but are quite independent of our knowing; for they exist for others as well as for ourselves. This desk is not a phenomenon, unless phenomenon means thing, or whatever is not self-dependent. Our knowledge of it, so far as it goes, is parallel to the fact. If it be said that the desk is a phenomenon because it is composed of atoms, the reply is, that this would not make it a phenomenon, but a combination of real elements. We did not claim that the desk is a metaphysical unit; but if it be composed of real elements, it remains as real as ever. The properties and relations of the desk remain what they were, in spite of the atomic theory. These properties and relations may result from something deeper than appears; no matter, they are what they are. The desk itself may be destroyed; still our knowledge of it, while it remains, is valid. If the idealist say that the desk is only an idea, the reply is, that the name is indifferent, if the thing be retained. This which he is pleased to call an idea, is independent of my knowing,

both in its existence and in its relations; and that which thus exists and supports relations, is the precise definition of a thing. This class of ideas differs from all others in just the way in which things differ from subjective thoughts. If he adds that it is only a manifestation of a universal spirit, we have no objection; for, as such manifestation, it has the attributes which we ascribe to it. If he further call it a mode of reality, we agree again; for as such mode it is real; and we know both it, and reality as manifested in it. It may not be self-existent; for all we know, it may be the constant product of an activity not its own. Nevertheless, however produced and however compounded, our knowledge of it is undisturbed. These questions as to the ultimate nature of metaphysical reality, are foreign to a theory of cognition. Much can be known about a thing, and its relations to other things, even if we cannot tell how the thing is made, or how it is related to the infinite. Now, throughout this illustration, nothing has been suggested which makes against the knowledge we have; and the ignorance which has been pointed out, is merely ignorance of what we do not pretend to know.

Now since our conceptions of things are all with which the mind has to do, it follows that error can be known as such only by the appearance of discord among these conceptions. This the mind will always regard as a sure sign of error, and will proceed to rectify it. This discord always arises from taking a new mental stand-point, or from a more extended experience; and the rectification never consists in abandoning the mind's power to know, or in discrediting its principles of judgment, or in over-

turning what it really knew before. It consists, rather, in showing that false inferences have been based on real facts, or in limiting too extensive generalizations. The doctrines of the antipodes and of the world's revolution are cases in point. The necessity of these doctrines arose from the fact that only thus was it possible to bring all our conceptions and experiences into harmony; and their acceptance involved no abandonment of rational principles, but only a more careful application of them. Reason received no shock from these doctrines; and knowledge was not overthrown, but extended. This is the case with the thousand rectifications which we are constantly making. We find discord among our conceptions, and are compelled to limit and modify our previous positions; yet never does actual knowledge become shaken, but only its interpretation. Even our theories of knowing undergo similar modifications, but no fact of knowledge is disturbed. We begin by thinking that sense-qualities reveal things as they are. Soon this view is rejected; but the nature and relations of these qualities are the same as before. Then sense-perception presents the world as a plurality of objects of various kinds. Finally, we suspect that even this view does not give us the deepest fact, but that things which appear are functions of things which do not appear, and that the many are forever dependent on the one. Thus we reach at last the view, that neither sensation nor sense-perception, but reason only, is able to reveal the truth of things. Yet all the while we question nothing which the senses give, and we deny no fact of perception. We only deny those

false implications with which our spontaneous perceptions are filled. Perception, as well as reasoning, needs the constant supervision of the reason. The question which reason asks is, How must we think of things? And when there is necessity and perfect harmony in our conceptions, the mind will regard that as the highest proof that thought and thing are parallel. Of course, the old doubt is still possible; we may still question whether things may not in truth be altogether different from what we think them; but until some reasons can be given beyond the possibility of the verbal doubt, the doubter must be left to himself. He is amenable to neither argument nor intelligence.

But the skeptic is not easily baffled. He clutches eagerly at what we have said about the antipodes and the world's revolution, and claims that the opposite beliefs were once universal and necessary; and, therefore, universality and necessity are not sufficient tests of truth. He next asks, how we know that some future revolution of thought will not displace all our current conceptions. To the claim, we reply that the doctrines of the earth's flatness and steadfastness were never either universal or necessary in the philosophical sense of those words. The conception of a round and moving earth is as easy as that of a flat and fixed earth. To the ancients the antipodes were not inconceivable, but simply incredible. They had not the evidence or the facts which make them credible. When the facts were discovered, reason had no difficulty with the belief. With rational principles, however, the case is entirely different. Their opposites are not only incred-

ible, they cannot even be conceived. Their denial is possible in word, but not in thought. Like the phrase, square circle, it defies all construction. Now, to confound the simply incredible with the truly inconceivable, or the impossible in thought, is infantile in the extreme. The objection we are considering rests upon this confusion. The conception of universality, which appears in the objection, proves only the need of further philosophical study on the part of the objector. To the question, whether our present conceptions may not be displaced in the future by the discovery of revolution in what we now regard as fixed, we reply that this is very possible with regard to our empirical knowledge of things. But no skeptical conclusion concerning knowledge follows from this admission. The bulk of our so-called knowledge is theory, and is far from being either self-evident or necessary. This department of theory is in constant change, but the knowledge on which it is based abides. The rotundity of the earth displaced a false theory, but overthrew no knowledge. The theories of physics and chemistry change, but the known facts and laws abide. Water and its properties are just what they were when it was regarded as an element. Phlogiston and caloric have vanished as theories of heat, but no known fact about heat has been disturbed. Whatever, then, the discoveries of the future, and however they may overturn current theories, we may feel sure that they will not displace present knowledge, provided, always, that the objects of knowledge remain as they are.

But do we really know things as they are? Is it not

possible that if we had some angel's eyes, we should see things to be quite other than we now see them? Such is the doubting question which, not knowing what it asks, ever returns. Well, let an angel draw near and make revelations. He might very possibly tell us many things which we do not know. He might correct our errors, and confirm our knowledge. But if he should begin by contradicting what we know, we should lose all faith in his further revelations. If an angel should arrive from Mill's world, where two and two make five, and should announce this great truth, we should be quite sure either that he meant something different from what we do by two and five, or else that he was mistaken. The skeptic can greatly strengthen his faith by imagining some such principle as this of Mill's to be a matter of revelation. Let him think of the doctrine of the Trinity, if he wants to know how strong his faith is in numerical axioms. Let him put Mill's suggestion into the Bible, if he wants to know how abjectly irrational it is. Yet we continue to say, if our eyes were only opened to the reality of things, how we should be surprised and astonished. Let us grant it. It is still clear that this surprise and astonishment are possible only as we, and the world, remain the same. If the world were changed by this opening, it would be another world; and it would not be surprising if another world were different from this. If we were changed, and our memory of our old conceptions were lost, there would still be no ground, and no possibility, of surprise. It is plain that this hypothetical surprise could only consist, not in the loss and overthrow of our present knowl-

edge, but in seeing that the commonplace objects about us stand in a multitude of relations, and have various powers which we had not suspected before. Such an opening of the eyes might well surprise us, but it would not destroy our present knowledge; it would only enrich and extend it.

A marked characteristic of all these skeptical arguments is, that they all assume that the mind is a stranger in the universe, and without any relation to the nature of things. Hence, thought and thing are incommensurable, and can never come into correspondence. But suppose we turn skeptics, and ask for the ground of this strange assumption. This reality, which is the negation of thought, what warrant is there for affirming it? What is it but the void? This mind, also, which is alien to all reality, whence comes it? Whence has it its strange laws, which so mask and transform the fact, that it is itself no longer? We have here a dualism of the worst kind, and one which, according to the theory, can never be reconciled. But if the world be the product of mind, there is no reason why our minds should not know it as it is. No theist is justified in being an agnostic, except in the commonplace sense that our knowledge is limited and imperfect. If, on the other hand, mind is a product of the external world, we should expect a still more exact correspondence of thought and thing. For does not evolution teach that the mind, and all that is in it, result from the "interaction of the organism and the environment?" And is not all thinking defined to be an internal adjustment to the environment? And is not this "correspondence"

said to go on increasing in exactness, both in space and time, until "the adjustment of inner relations to outer relations" becomes complete? Certainly, in such a theory one would look for exact knowledge. Judge, then, of our surprise on learning that thought completely misrepresents the fact, and that the so-called adjustment is only an ever-widening alienation. The result is so unexpected, so alien to the reasoning, that one knows not what to make of it. The universe is set to developing minds, and to stocking them with proper notions about itself; and although it does this under the law of necessity, and under every possible obligation to tell the truth, it proceeds to give a garbled account of itself, and makes no account of the truth whatever. We must reckon this among the many mysteries which the evolutionists have bequeathed to the world.

Our aim in this discussion has not been to determine what we know, but rather what it is to know. We have sought, by giving a definition of knowledge, to enable the reader to judge for himself whether knowledge is possible. A universal standard of certitude is a chimera; but certitude is possible for persons. Doubtless a careful analysis would show that we know much less than we think we do; or that the realm of knowledge is much smaller than that of belief. It may occur to some that our argument for the reality of knowledge moves in a circle, because it consists in saying that the mind must have faith in itself; but such a criticism involves a complete misunderstanding of the

question. The mind begins with trust in itself; and the skeptic seeks to break down that trust. To do so he must bring reasons. If he bring no reasons, or if his reasons prove irrelevant, or admit of sufficient reply, then his skepticism becomes groundless and irrational, and the mind may resume its trust in itself. We have not sought to demonstrate the validity of knowledge, but the groundlessness of skepticism. This we stated at the beginning. The skeptical argument we regard as a weak misunderstanding. Rational skepticism is healthful and necessary; and there never was greater need of it than at present. It is also a question whether there ever was less of it than now. But the skepticism with which we have been dealing is not of this character. Its positive arguments against knowledge are all failures. Its chief reason for doubt is, that knowledge cannot be proved to be objectively valid. This demand for proof is either a misunderstanding of the nature of proof, or else it is absurd. We cannot estimate such efforts very highly. On the contrary, all fundamental skepticism is a mark of weakness and disease. Its rebellion against reason tends to issue in abject credulity. As a preparation for adopting the most debasing superstition, there is nothing equal to a little practice in philosophical skepticism. It produces the same effect upon the understanding which unchastity does upon the character; and it might not improperly be called a mental whoredom. The rational being denied, there is no longer any irrational; and one view is as tenable as another.

Concerning the reconciliation of science and religion

which agnosticism was supposed to effect, it is needless to speak. Events have judged it. The religious world has been deservedly punished for invoking skepticism to defend obnoxious doctrines. The unknown God may be a ground for fear; he is no subject for love or worship. If agnosticism be taken in earnest, both science and theology are only subjective dreams. If it be allowed that our conceptions may, more or less well, represent reality, then the question arises whether physical or spiritual conceptions best represent the ultimate fact. Thus the so-called war between science and religion emerges at the end of the agnostic controversy in the same form which it had at the beginning. We pass now to consider belief.

## CHAPTER II.

### KNOWLEDGE AND BELIEF.

ONLY that is properly said to be known whose evidence or nature is such as to compel acceptance. Very little, however, of our so-called knowledge has such a degree of certainty. Rational principles, and the facts of consciousness and immediate perception, are all that can claim to be strictly knowledge. Still it does not follow that all else is delusion; for, though not strictly certain, it may be rationally probable, and thus a subject for rational belief. By rational belief, then, we mean the acceptance of any thing on grounds which, while they render it probable, do not strictly compel its admission. They justify the mind in accepting it, but do not exclude the possibility of the opposite. We believe that the present laws of nature will be valid to-morrow, but we do not know it. It is conceivable that some change might occur in the nature of things, which would reverse all the present orders of co-existence and sequence. The assumption of the uniformity of nature is necessary to enable us to advance a step beyond our experience, whether in space or time; but this assumption is no necessity of thought. The mind finds no difficulty in the conception that all the laws with which we are acquainted may be limited both in space and time. The physicist believes that

material things are composed of ultimate atoms, but he does not know it. The entire structure of scientific theory is equally a matter of belief. Theories are never facts of observation, but inferences; and they never rise to the rank of certainty. Probability is more than the guide of daily life; it is also the guide of science and reason itself. Were the natural sciences restricted to what is truly known, they would shrivel up to a handful of unrelated facts, of much value for practice, but of little or none for intelligence.

A belief, to be rational, must have rational grounds. When held without grounds, it is a volition; when held on irrational grounds, it is a prejudice or a superstition. But the grounds of belief may be manifold. They may be such as appeal only to the passionless understanding, and hence such as any one with common sense would recognize. The mathematical doctrine of probabilities is a great illustration. Such grounds of belief are elementary, and call no elements of character into play. They admit of calculation, and result in substantial harmony of opinion. But the grounds of belief may also be such as appeal not only to the understanding, but also to the esthetic, and moral, and religious nature. As such, they are no less rational than the former, though their validity would not be recognized by any in whom the esthetic and religious elements were lacking. All beliefs are of this class into which sentiment of any kind enters, whether it be of patriotism, or of duty, or of love, or of art, or of religion. We may say, then, with sufficient accuracy for our purpose, that the grounds of belief may be objective and sub-

jective. The former are the facts of sense-perception: the latter are the manifold facts of feeling and instinct, the longing for the true, the beautiful and the good, the sense of dependence and moral obligation, the desire to worship, and the fervors of religious aspiration. Belief on such grounds might be defined as the acceptance of something, for reasons subjectively sufficient, but objectively insufficient. In every such case, the development of the subject determines, to a great extent, the credibility of the fact. Belief on objective grounds is entirely simple; belief on subjective grounds demands some further explanation.

When we speak of believing on subjective grounds, the first impression is that we are advocating mere credulity; indeed, credulity consists in taking our feelings and impressions for arguments. This is plausible only when abstractly stated, or when, by feelings, whims are meant. For feeling also is a fact; it is the product of the universe, and must have some relation to it. It must further be borne in mind that when the grounds of belief are objective, they are seldom capable of formal statement. Just as we recognize a face with perfect certainty, though we might be unable to describe a single feature in detail, so in daily life we discern a belief, or a course of action, to be rational, even while it would be impossible to formulate the real grounds of our opinion. If we attempt it, we find that our statements do not state, but rather misstate, our reasons. This is characteristic of daily life. We constantly believe and act upon impressions which we could not put into words without seeming ridiculous, and which we

could not ignore without being irrational. The merchant, or captain, knows well that one course is better than another, but he would often be sadly puzzled to justify his opinion by any thing but the favorable result. Such action and judgment partake of the nature of instinct. They are the total outcome of our past experience; and, although the reasoning element has almost entirely disappeared, they are, in general, far more trustworthy than our labored calculations. The reasons for trusting or distrusting persons, also, are seldom susceptible of formulation; and that, too, in cases where the greatest interests are ventured. This is especially the case with personal influence. An impression is made upon us, and we are stirred and molded by something which we feel but cannot tell. In short, the great bulk of human belief and action rests upon grounds which admit of no satisfactory statement; yet we cannot disallow such grounds of belief and action without declaring life to be illogical and irrational. But in that case, the practical man could retort upon the theorist, that unless he is able to do better, perhaps the mistake is with him. As a rule, no one is more helpless, or more stupidly absurd, in dealing with reality, than the fanatical logician. As long as this is so, common sense will be more concerned to have its beliefs in harmony with reality as tested by results, than to have them in harmony with formal logic. Experience tends to issue in instinctive action and judgment, and of such action results are the great test. We conclude, then, that it is no objection to a belief that its grounds do not admit of satisfactory formal statement, provided

always that it works well. Is it any greater objection that its grounds are subjective, and even incommunicable?

Feeling proves nothing. This oft-repeated dictum is one of those which, from frequency and vehemence of utterance, have been mistaken for self-evident. It is true only for individual, isolated, and transitory feelings; the great, fundamental, and abiding feelings of the race may prove much. Those who appeal to this dictum are seldom aware to what an extent feeling and sentiment enter into our intellectual life, and even into their own theories. The deepest propositions concerning life, and duty, and character, have no other proof than the moral recoil which attends their denial. At the same time the only disproof possible is the absence of that recoil. It is an attempt to prove a negative on the strength of negative evidence. Every one in whom the moral nature is active, needs no proof of the beauty of holiness; and he regards a denial as we regard a blind man's protest against the absurd doctrine of vision. In Fenelon's "Telemaque," Ulysses tries to convince one of his crew who has been changed into a hog by Circe, that it is shameful for a man to be a pig, but without success. Here is a point where argument is impossible. If there be no sense of dignity in man nothing can appear degrading. Both in ethics and esthetics the ultimate fact upon which all theory is built, is a movement of the sensibility, which thus founds the distinction of good and bad, beautiful and ugly. The most rigorous rationalist in morals cannot escape the ultimate appeal to feeling to sanction his theories. The whole

mental life, also, springs out of feeling. It is extremely doubtful if a purely perceptive being, without any subjective interests, could attain to rationality, even if its physical existence were secured. Indeed, it is demonstrable that our sentiments outline and control all mental development.* Before mental growth can begin, there must be an awakened interest, and when the interest is awakened, the leaden chaos of sense-experience begins to take on intelligible forms. The love of truth, which is the mainspring of science, is only one phase of religious feeling and worship. Truth, as simple correspondence of thought with fact, cannot arouse enthusiasm. It has, indeed, a low value of utility, but nothing on which a soul may live. It would be an interesting psychological problem to trace the history of a gigantic intellect from which all feeling of interest had vanished. The enthusiasm of knowledge tacitly assumes that the object is worth knowing. It assumes that the universe is the abode and manifestation of a wisdom infinitely more august than our own. Without this implicit assumption, science becomes a mere hunt for bread and butter, or for personal notoriety. This subjective element appears even more prominently in all theories of life and the world. No such theory can be framed without teleological implications, and the choice of many possible standards depends upon the subject. A very common notion with skeptically inclined persons is, that the only fit end of life is to learn physical facts. They would empty the mind of all esthetic and moral

*This point has been very happily put by Dr. James in the "Journal of Speculative Philosophy," for January and July, 1878.

aims, and turn it into a store-house of statistics. One man thinks hasty belief a blasphemy to be visited with the penalty of deathless fire; and another declares that he will go to hell rather than worship a being whom he does not respect. But why fill the mind with bare facts rather than with good feelings? Why exalt statistics at the expense of esthetics? This apotheosis of fact in cognition over pleasure and exaltation in feeling, may be entirely justified, but its evidence is purely subjective. If it be said that the former works better in the long run, still we do not escape subjective standards. For the working better must be tested by the effect upon well-being, and this, again, involves several assumptions. It assumes either that the truest must work best, and, conversely, that what works best is the truest; or else it assumes that truth in itself is worthless, and that our interests are the only standard of truth and falsehood for us. Moreover, well-being itself is ambiguous. It may be physical, mental, or moral well-being, and the theorist must decide which he means. But the standard of judgment can only be a feeling of worth, and not any objective norm. Thus subjective interests and sentiments constantly turn up as the decisive factors of theory. The theist and optimist are often twitted with making human welfare the standard by which they judge the system. But the pessimist does the same thing. When he declares that this world is worse than none, he has human well-being as his standard, and commonly he thinks only of physical well-being. No theory of the world is so vilely anthropocentric as that of the pessimist. The same subjectivity appears in all

the atheistic criticisms of nature and life. None are so purely subjective as those who affect to renounce subjectivity. As between world-theories, therefore, no one has any right to charge any other with resting on feeling rather than on fact, because all alike are built on this foundation. Some claim that the end of man is to eat, and drink, and die. Others, again, insist that there is something better than living and worse than dying. The atheistic evolutionist holds that the mind exists only to secure the physical survival of the individual and the species. This doctrine is as purely teleological as any other, only its teleology is of the lowest form. The theist holds, on the contrary, that the whole physical system exists only as means for securing mental and moral existence. The positivist claims that the great duty of man is to fill his mind with physical facts. The artist and the moralist alike detest a merely statistical mind, and demand that the mind devote itself to realizing the true, the beautiful, and the good. We may as well recognize that as soon as we leave the facts of immediate perception, and begin to frame theories of things, subjective interests and impressions are the most important factor. Nature furnishes the raw material, and each one builds his own image. The supremacy is claimed for sense, for reason, for physical interests, and for esthetic and moral interests. The unconditioned good is put in eating and drinking, in feeling good, in knowing facts, and in mental, moral, and religious development. All alike, then, being subjective, the only question which remains is, which of these subjective interests shall control our theories, and which of

them is best supported by all the facts. Teleological our theories must be; is there, then, any end which has an absolute value and a divine right to rule? And in discussing this question, we must never forget that the mind itself, and its experiences, are also facts. They are no chance products, but rather the flower of the universe. Whatever end, therefore, we may propose, it must be able to satisfy the mind's deepest and highest wants. No other end is likely to be parallel to reality, for on any theory, except that of utter skepticism, these wants and aspirations must be viewed as oracles. They are the voice of the universe in us. Something must be ventured: either we must trust the higher against the lower, or we must trust the lower against the higher. Formal proof is no more impossible in one case than in the other.

It may be worth while to restate this view in another form. When the human mind comes to self-consciousness, it becomes aware of many interests. There are practical, speculative, esthetic, and moral interests. These are the motive-powers of the mind, and outline its development. The only function of the logical understanding, with regard to them, is to expound their implications, and determine their mutual relations. Of course, the man who believes only in what he sees belongs to no intellectual class. All that he demands of the system, is something to eat and drink. But every other man assumes instinctively that the system contains what his nature prompts him to seek. The speculator finds himself unable to rest in an unrelated manifold, and hence he posits unity in the

diverse. His mental discontent leads him to assume the possibility of unification. But why should nature be unifiable? Why should a mental unrest be made the ground for assuming, that the system really is what we wish it to be? The scientist also assumes that the system is intelligible and rationally construable; and any suggestion to the contrary he regards as essentially absurd. But why? Why should the system be construable? Is that the highest end of its existence? If we have a general order in the leading phenomena of nature, that is enough for practical purposes. Until the present time, the world has contrived to get on, although whole departments of facts have been to us almost utterly lawless realms, and it is quite conceivable that they should never manifest any consistent intelligible order. No practical interest would be affected, but our speculative interest would receive a great shock. Yet the scientist does not hesitate to regard this mental unrest as pointing to the conclusion that reason and law are universal. If we ask him why, he replies that on any other assumption, science would not be possible. But why should science be possible? What crying need is there for such a universal science as he dreams of? The scientist often mistakes his enthusiasm for science, and his passion for formulation, for proofs that reason and law are universal. It never occurs to him that this is a tremendous assumption, based only on his subjective needs; and hence, he often tells what science can and cannot allow, as if its needs were the fixed points of the inner and outer universe. But the man of artistic and poetic temperament is

quite indifferent to the aim of the scientist and speculator. He thinks it a very small matter to gather up many things into a single formula. It may have a certain low value in our mental book-keeping, but, otherwise, such summation is meaningless and worthless. Suppose it possible to unite all things under a common law, what of it? What we want to know is, the meaning and worth of things. Formulation gives no value to things essentially meaningless and worthless. He declares, therefore, that the work of the speculator and scientist is unutterably stupid and tedious, unless it introduce us to a world of meanings and values. He insists that the universe must have grand meanings, which our only aim as rational beings should be to read off and interpret. He dwells upon the riddle of the world and life, and seeks to charm its meaning from it. He catches glimpses, as he thinks, of a supreme beauty, and gets hints of meanings too deep for utterance. These are the things for whose revelation the great world stands. Allied to this view is that of the moral enthusiast. For him the free moral personality is the only unconditioned good. For him there is no science like that of duty, and no beauty like the beauty of holiness. Personal righteousness is the highest thing, and he, therefore, insists on holding that the system was constructed for righteousness' sake. Now all of these views alike start from subjective sentiments. Mental unrest causes us to assume that law and reason are universal. Mental unrest causes us to assume that the universe has magnificent meanings hidden in it. Mental unrest also causes us to assume that its most

magnificent, its all-interpreting meaning, is love and righteousness. Thus we see that the great, leading manifestations of the mind are based entirely on subjective interests; and thus these interests become to us the great interpreters of the universe. These several sentiments are not equally strong in all; and there is a tendency in every one-sided person to ignore or ridicule those things which he does not appreciate. The physicist laughs at the philosopher, and the half-philosopher scorns the physicist. The lover of beauty cares for little else; and the moralist often places duty so high, as to make all else vanity and vexation of spirit. But as long as the world stands, and man remains man, there will be physicists, and poets, and artists, and thinkers, and lovers of righteousness.

Now, what we wish especially to insist upon is, the subjective character of the scientific and speculative sentiment. Because this fact is commonly overlooked, there is all the more need to insist upon it. The moral sentiment is forbidden to make its needs an argument for objective correspondence, yet this is precisely what the scientific speculator does in his own case. He assumes that the world was made on an intelligible and rational plan, and for no other reason than the mental distress which results from denial. He may say that experience at least partly supports the assumption; but the moralist also can say, that experience at least partly supports his assumption, that the world was made on a moral plan. In general, the power not ourselves does make for righteousness. It is, then, idle to imagine that any of our general views of

things can escape the control of subjective interests. All such theories are alike assumptions; and there is nothing to do but to ask which of them best satisfies the mind, and which is best supported by the sum of our experience. It is equally idle to imagine that the scientific interest will ever expel the others; for, as pointed out, the doctrine of meanings and values is the only thing which gives any significance whatever to science and speculation. At times, the speculative interest may overtop all others, but not long. The reaction against the usurpation of the scientific sentiment is already apparent. By ignoring or denying the doctrine of meanings and values, it has become a prey to pessimism, and pessimism is the *reductio ad absurdum* of any theory. This does not follow as a formal conclusion from formal premises, but none the less does it follow from the total experience of the human mind. It may be an opaque fact in the soul, but it is beyond doubt, that no theory will endure which blasphemes the system of things, and makes life not worth living. Whether such a fact proves any thing we shall see hereafter; at present, we insist upon the fact.

The practical man might further retort upon the speculator, that his theories have never been able to cope even with physical reality, and still less with mind and life. All reality has obstinately refused to come into his formula, and has scoffed at the vain attempts of the speculative reason. The history of thought is the history of failure. The history of scientific theory is one of incessant change. Hence, philosophic skepticism. Hence, also, phenomenalism both in science and philos-

ophy. The most prominent feature of the scientific and speculative thought of the century is the conviction that reality is unknowable. We do not share this conviction, but its wide acceptance does certainly show that speculation has little ground for boasting against life and conscience. One cannot glance along the history of thought without saying, with Mephistopheles, "A speculating fellow is like a beast on blasted heath, led round in circles by an evil spirit." It is not without ground, therefore, that Kant insisted upon the primacy of the practical reason, and the subordinate character of the speculative. Man is life rather than reason; and reason only strives to formulate what life and reality are. Certainly, if it were only a matter of mutual recrimination, the practical reason has much the stronger case. In the light of its own history, no faculty should be so humble as the speculative, for none has so disgraced itself. What has it achieved, but confusion and mischief? The claim that practice is illogical, is met by the retort, so much the worse for logic; for thereby it confesses that it is unable to cope with the real. Speculation owes far more to life than life owes to speculation. If it were possible to shut up a body of speculators apart from all contact with practical interests, there is no doubt that the outcome would be the supreme of grotesqueness and absurdity. Even now the so-called advanced science is so possessed of the unifying and formulating mania, that it can hardly be restrained from destroying all its own data. By consequence we are presented with the odd but instructive spectacle, of a science which overthrows life,

denies consciousness, obliterates all distinctions, repudiates all those principles by which men and governments live, and confounds even the most heterogeneous things, for the sole purpose of bringing every thing under a common formula. This is simply speculation gone mad, and committing suicide. Life has the field, and the might of the actual will always prevail at last over aberrant speculation. We conclude, then, once more, that all general theories of life and the world are based on subjective interests, and that the only questions which can be raised are, which of these interests should rule, and which works best as a ruler. In this inquiry, too, we cannot help making the general assumption that nature is no more of a step-mother to man than to the lower animals, and that his instincts are equally trustworthy. Those views, therefore, of man and his relations which must develop and dignify human nature, and which work best in practice, are at least presumptively true. Pessimism and despair are the only alternative. In addition, then, to beliefs deduced from formal data, there are other beliefs which are based on results. Such beliefs have not the support of formal proof, but they have what is better, the attestation of reality.

But still we have not shown that feeling points to any thing objective. Thus far we have only made out, that all theories are subjective; why not, then, abandon all, and have faith in none? One reason is, that it cannot be done. The pretense has often been made, but it has never been more than pretense. Teleology is the frame-

work of both the speculative and the practical reason. But, it will be urged, do you seriously mean to say that a thing is real because we wish it? I wish to believe in God, therefore there is a God; what logic is there in such a conclusion? We reply, that of course we cannot intend to base any conclusion on individual and non-essential feelings and interests, but only on the essential needs of the mind; and these, we hold, render an objective correspondence highly probable. Indeed, not even the atheist ought to object to this position. The power which has brought us forth is not, indeed, intelligent, but it acts as if it were; and hence we may assume as probable, that what intelligence would call for, that the blind power will furnish. It has been able to create animals and fit them to their lot, to supply them with proper organs and instincts, and in wonderful ways to provide for its children. But, curiously enough, the atheist supposes that this power must turn blockhead with man. Here it has produced wants which it cannot meet, and instincts without any object. Surely, if it can do all that the atheist assumes it can, there should be no difficulty in believing that it has also provided for the human wants and instincts which it has created. The power which has been wise enough to make us, ought, especially on atheistic principles, to be able to keep us in existence, and even to punish and reward us according to our works. But, seriously, we do hold that a general belief renders a corresponding reality highly probable, even when no sufficient formal defense is possible. Such a belief represents the total outcome of a race-experience, the impression which the universe

has made upon us. Especially should philosophical evolutionists allow the force of this argument; for they insist that all our beliefs are made for us, and represent the totality of our experience. But, oddly enough, while they allow its full force with regard to rational principles, they dispute it with regard to moral and religious beliefs. The oldest truths, they say, represent the most fundamental elements of experience. If there be any relations which are fundamental, we should expect that they would appear in all our experiences, from the earliest to the latest. Hence their superior age and cogency. Conversely, a general belief can only be regarded as a transcript of our most general experiences, and hence as having the highest degree of probability. Yet when these philosophers have occasion to criticise ethical and religious principles, the opposite doctrine is set up, that the new is most trustworthy. We are often called upon to reject theism as having a suspicious parentage, being the outgrowth of fetichism, and the product of a savage state. Yet it would seem that a belief which has been able to impress itself upon all ages and stages of humanity, ought to be at least as probable as the late opinion of a little clique. But a narrow consistency is not one of the failings of the evolutionist. We are not prepared, then, to reject the argument from general feeling and belief, because on any theory of knowledge, a feeling or want which is common to men is the expression of a fact; it is the way in which reality manifests itself in us. Our feelings are the subjective side of the universe. Upon this point we are in full accord with the evolutionist. They conserve well-being,

point out duty, and outline development. We must once more express our surprise that the evolutionist should fail to see that on his theory feeling and instinct, rather than understanding, are the great guides of life. It looks almost as if the subjectivity of prejudice were needed to explain so peculiar an oversight.

Our position will appear less strange if we attend to perception in general. All sense-perceptions are but conclusions from sense-impressions; or rather, the object is posited by the mind because of its sensations. The senses do not give us reality, but only states of self. The reality is reached only by the mind. Now the final test of reality in perception is, that it compels and coerces our sensations. How the object does this we do not know; and we know that there is an object only because the sensations are coerced. If, then, there is any other element in the totality of our experience which equally coerces our belief, and which, when denied, invariably comes back, then there is the best ground for saying that in such experience, as well as in sense-perception, we come in contact with something not ourselves. There is nothing in psychology to forbid the thought, that contact with reality may take place other than through the senses. Indeed, the world of physical reality is, for the most part, inaccessible to the senses. At best, the senses give us only impressions; the interpretation is of the mind. Forces, and atoms, and ethers do not exist for the senses. The senses never reveal that the points of light above us are suns and systems. The mind affirms these realities, because of its sense-impressions. In the same way the subjective

impressions of conscience, the haunting conviction of things not realized, the dreams of a beauty and a good beyond all that we have experienced, may well be the revelation in us of some power which besets us on every hand, and makes for righteousness. They have this external character in experience. They are in us, but not of us. Conscience has always seemed to the race to speak less in its own name than as the delegate of an invisible king. And the sense of things unseen often drifts in upon us with such a feeling of reality that the solid earth grows phantom-like in contrast. This is the conviction which these experiences have made upon the race. They coerce us, and we cannot escape them. That they are indeed the working of an objective power may not be proved, but still less is it disproved. A race-psychology is, in many respects, far more trustworthy than the psychology of the individual; and its verdict is, that these things are indeed the manifestation in us of a person not ourselves. And if we find that with the growth of moral character such convictions become firmer and firmer, until they arise to a subjective certainty which cannot be shaken, then there is good ground for assuming that they lie parallel to reality, and are derived from it. On the basis of certain impressions, we posit material objects. On the basis of other impressions, we posit spirits like our own. On the basis of its total mental and moral experience, the race has posited God.

This general conviction in a divine existence, we regard as less an inference than a perception. This is shown by the history of the belief, which is older than

reflection and speculation. The sense of the supernatural is a distinguishing feature of the human mind, even in its lowest stages. And this conviction cannot be deduced from our sense-experiences alone; for a sense-object is simply a sense-object, and cannot be any thing more, unless there be some sense, or feeling, or conviction of the supernatural. This feeling being given, our sense-experience may serve to give it form; but, without the feeling, the senses can never transcend themselves. A stick must be more than a stick before it can be made a fetich. The sun must be more than it seems before it can be worshiped. Until the feeling of the supernatural in general is given, man is on the religious level of the brute. The senses of the latter are sharp enough, and it experiences, too, the same vicissitudes of fortune as man, but without religious manifestations. Some speculators attempt to deduce the belief from the phenomena of dreams. They trace the whole religious history of the race to the fact that some ancestral savage dreamed, and mistook his dreams for realities. The idea of the supernatural once afloat, was speedily and greedily taken up by the race, and, with the exception of a few rare and choice spirits, it has been haunted by the notion ever since. This view needs no criticism. It assumes that men in general are fools; and there is nothing to do but to return the compliment. It is no argument against our view that the perception of God is vague, and in itself almost formless. For even sense-perception derives its certainty from our incessant experience. We learn to perceive. A vague sense of objectivity is all that is immediate in perception. If

the mind should remain as it is, but the sensations on which perception depends should be rare, or conditioned on character, we should have the same belief about the external world which we now have about God. There would be a general belief in the outer world, but the content of the belief would be vague and misty. A constant experience is necessary to reduce the vague objectivity which is given in sensation to definite order and meaning. There would, also, be many skeptics demanding, What is this outer world? Where is it? What is the proof of its existence? Of course, they would denounce the general belief of the race as worthless. Finally, there would be uncertainty whether this outer world were an inference or a perception. For ourselves, we hold that God himself is the great source of the belief in God; yet only in the sense indicated. Just as sensation needs reason to interpret and arrange it, and without reason remains chaotic, so the feeling of the divine needs reason to interpret it; and without reason and conscience, it remains a confused suspicion of an object which can be neither escaped nor understood. But just as sensation is an absolute condition of perception, so this feeling of God is the absolute condition of theistic belief. The reflective reason does not originate it, but justifies or rectifies it. The arguments for theism have never originated the belief, but have only aimed to give reasons for the belief already there.

With regard to individual beliefs on the basis of personal experience, there can be no argument; for there is no common ground between the believer and the doubter. All that the latter can rationally say is, that

his experience warrants no such beliefs; and the former replies, that his does. Direct perception, whether of sense or spirit, can never be mediated, and its grounds can never be communicated. The attempt to tell how we perceive, always results in simply restating the fact of perception. Only experience under similar conditions can in any way test its truth. When the doubter and believer thus come face to face, each will have to allow the other his opinion. The former cannot deny the experience, and the latter cannot supply the experience to another. There is no ground for claiming that perceptive power must be equal in all. Some may see farther than others; why may not some see more than others? On the low plane of sense-perception, great diversity of perception would work confusion; yet even here it is a question how much of apparent harmony is due to a common language, rather than to identity of sense-experience. But, in the higher realm of spiritual perception, it is not incredible that there should be varying power, and that such variation should be conditioned by the moral character of the person. If the poet, the mystic, and the Christian affirm a spiritual communion with the unseen, only narrowness and conceit can find any argument against the reality of such communion in the fact that others, who do not fulfill the conditions, are not conscious of it. Argument is idle; experience only can truly test such a claim. The only demand we can make upon such persons is, that their higher experience shall not distort the lower. A mind which distorted all the facts of daily life, and all the common principles of judgment, would be justly sus-

pected of madness rather than illumination; but a mind which is healthy in its lower perceptions is not to be distrusted simply because its higher perceptions transcend the range of the five senses. When the Christian finds that faith in Christ is attended by a growing love of righteousness, and by growing power to realize it, and when he further finds that a multitude of others have the same experience, then he has a right to conclude that he is not deceiving himself, but that he and they have come within the range of some mighty spiritual attraction, whose effects are as real and as demonstrable as those of gravitation. Why should it be thought a thing incredible, he demands, that God should raise the dead soul and fill it with himself? Speculation cannot give experience, and cannot give the matter for thought. There must be reception from some quarter before thought can begin; and then the only function of thought is to work over the raw material. A great fact, therefore, like the consistent experience of Christians for many centuries, can be tested only by accepting their standing challenge to the world to try it and see. As the mind posits the physical world upon occasion of sensation, so it may posit a spiritual power on the basis of its spiritual experience. In either case the validity of the perception must be tested by each for himself, and never by another. The perception of an infinite personality is in itself no more mysterious than the perception of a finite personality. We never see one another. The senses never reveal the person. The fact of personal communion is so familiar, that we lose sight of its mystery; but, on reflection,

nothing is more mysterious than the way in which we posit persons other than ourselves, and even enter into their secret thoughts and sympathies. A touch, a thrill, a sound falls upon us, and we say that a person, a spirit is speaking to us, and demanding entrance into our thought. Experience has no greater mystery. But the infinite is nearer than the finite; and it must be solely a question of experience whether there may not be as intimate and real a communion between the finite and the infinite, as between the finite and the finite. We doubt the senses, at times, but the coercive power of reality soon expels the doubt. We question, also, the reality of the spiritual and moral; but here, too, the doubt is soon driven off by the experiences of daily life. Persistence and power to compel experience, the only tests of reality, are present in both cases, though in different degrees. If it be rational to affirm the existence of the physical world on these grounds, it is equally rational to affirm the existence of a spiritual and moral world on the same grounds. The arguments which shake our faith in the latter, are equally valid against the former. It is for each to determine for himself whether the sphere of rational belief and objective reality is bounded by the five senses, or by the impressions upon the senses.

Our purpose in the preceding paragraphs has been complex. One aim has been to suggest questions and possibilities, and leave each to deal with them for himself. We have, also, sought to show that the grounds of belief are generally complicated, and often incommunicable. Nevertheless, the human mind as it is, re-

gards them as justifying belief and action. Frequently they are individual and class experiences. In such cases, those who have not the experiences must simply suspend judgment. To claim that their experiences exhaust reality, and that all else is delusion, is insufferable insolence. It is the railing of the eyeless against vision. Or the grounds of belief may be the great feelings and instincts of humanity. We have sought to show that in any theory of knowledge which is not purely skeptical, such feelings and instincts as have objective correlates must be regarded as affording a high probability that such objective correlates really exist. They give the psychology of the race, and are in many respects more trustworthy than the psychology of the individual. They eliminate all that is individual and peculiar, and express in its purest form the impression which reality makes upon the mind. Finally, in reply to the charge of subjectivity, we have pointed out that all theories of life, and mind, and the universe, are and must be subjective. Human interests and aims are the raw material of which all theories are built, and the standard by which all are judged. Teleology cannot be escaped. It only remains that we choose the standard which shall bring the greatest peace and dignity into life. We must venture beyond knowledge. Let the venture be toward the highest.

What we have next to say is pedagogical rather than speculative. Commonplace errors can be met only by the repetition of commonplace truths. A romantic credulity in the direction of irreligion has led to a

wide-spread notion that all the doctrines of physical science are absolutely certain. The holders of this notion seem never to have heard that positivism and agnosticism, both of which agree in limiting science to phenomena, and in discarding all theories except as convenient fictions, have never before flourished as they do in this century. In this way undue authority is claimed for physical speculations, and unjust disparagement is cast upon other departments of knowledge. To such an extent has this grown, that the bare word science acts like an enchantment to disarm criticism; and mental quacks perceiving this, hasten to call their nostrums science. In this way great injury is done to science itself. Atheists and materialists, in particular, have squatted on scientific territory to such an extent, that the opinion has got abroad that science is identical with atheism and materialism; and of course the squatters do their best to keep up the delusion. Whoever, therefore, feels irreligiously inclined, has but to make a picnic party into the scientific realm, and pick up a few scientific phrases and misunderstood doctrines, and at once his irreligion takes rank as science with all kindred spirits. This combination of credulity and insolence threatens to become pathologic, and it certainly has been for a long time a serious infestation of popular thought and literature. Theism especially suffers injustice from this state of things. Speculative and metaphysical doctrines are taken on trust when assumed by science, but are combated with wonderful acuteness and fervor when assumed by theism. It is, then, worth while to point out that the greater part of natural science is a matter of belief rather than knowl-

edge, and that the difficulties involved in theism are, at least, no greater than those involved in any objective science, and even in thought itself. But as the error is an exceedingly vulgar one, the refutation must be correspondingly commonplace. Of course, we do not attribute these oversights to all scientists, but only to the half-educated, who, unfortunately, are always with us.

All objective science assumes the uniformity of nature, both in space and time. The limits of this uniformity are the limits of science. By sheer force of repetition many have brought themselves to think such uniformity universal and necessary; but, in fact, we have to regard it as a happy circumstance. There is not the slightest rational ground for affirming that any of the laws which we know, excepting, possibly, the laws of motion, are not temporary and limited. The laws we know may be but a transient function of unknown laws, which, like the laws of motion, allow complete disorder in the outcome. But allowing the uniformity of nature, natural science falls into two parts. There are, first, the perceived facts and their orders of coexistence and sequence. There is, second, the department of theory and hypothesis, whereby we seek to explain the observed facts. If, now, we reckon the facts perceived to the realm of knowledge, we must reckon scientific theories mainly, if not entirely, to the realm of belief. In sound science the first thing is the facts, and then comes the attempt at rational explanation. For example, there are sundry peculiar planetary phenomena, and the mind says that they become intel-

ligible only as we assume that all the planets go around the sun. Sundry other phenomena are explained by assuming that the particles of matter attract one another, according to certain laws. Various facts of physics and chemistry are accounted for by teaching that matter has an atomic and molecular constitution. Optical phenomena seem to demand for their comprehension the assumption of a new and peculiar kind of matter. Now, it is claimed that biological phenomena make it necessary to assume a common genealogical origin for living things. Such is the nature of all scientific explanations. The facts to be explained are referred to a number of observed or hypothetical causes, which are further assumed with just such powers and just such relations as are necessary to account for the facts. But it is clear that all these theories are only inferences from the facts, and that it must be difficult to reach absolute certainty. For this whole process assumes, in addition to the uniformity of nature, the rationality of nature. It assumes not only that an explanation is possible, but that a rational explanation is possible. It further assumes, that of many consistent explanations, that one is true which is most simple and rational. But why should an explanation be possible? least of all, why should a rational explanation be possible? But even if nature be rational, why should its methods be such as we think them? Why may they not be ineffable and even transcendental to any conceptions we can form? Why may not all our theories of the production of phenomena be but the makeshifts of our feeble minds, which do, indeed, serve some purpose,

but which reveal no fact? Such is the doctrine of the positivist and agnostic. But allowing all that can be claimed for the rationality and openness of nature, it is still seldom possible to reach certainty with regard to any scientific theory. It is always easy to postulate a cause or causes, which, if real, would explain the facts; but we can seldom be sure that they were not produced in any other way. That a hypothesis fits the facts, is far from proving that it corresponds to reality; for the hypothesis was made for that very purpose, and the correspondence ought not to surprise us. The only exception to this principle is, where a theory is seen to be not only a possible explanation, but also the only one possible to reason. In other cases a theory may even be susceptible of mathematical expression, and lead to theoretical results which most experiments shall justify, and yet be no fact of nature. Such a one is the emission theory of light, or that of electric and magnetic fluids; and Mill and Comte insisted that the present ether theory is of the same sort. A useful working theory may still be unclear in itself; or it may conflict with some known facts; or it may introduce more difficulties than it resolves, and thus cancel its own reason of existence. It is not until a theory devised to account for certain facts is found to account for many other facts, not included in the original plan, that it acquires even a tolerable degree of probability. If a single motion were to be accounted for, and we were restricted solely to accounting for the motion without regard to any other conditions, an indefinite number of solutions would be possible. So in nature there are very few

facts which do not admit of many explanations. Hence the theory reached can only result from weighing different possibilities, and the various arguments for each. But thereby the possibility of error is increased so rapidly, that it is never possible to reach any thing higher than a rational probability.

In estimating the claim, often heard, that science is infallible and impregnable, it is of first importance to distinguish sharply between science as fact, and science as theory. The latter is forever shifting; the former only abides. It must be added that the practical value and utility of science belong entirely to science as fact, and not to science as theory. Its power consists, not in any insight into causes, but solely in having the law of phenomena. Having this, it can read the past, and previse the future; and, by arranging the antecedents, it can determine the consequents. Given the laws of chemical combination, we have all that is practically valuable in chemistry. Given the laws of heat or of electricity, it is practically indifferent what theory we may adopt. Indeed, we should be no worse off without any theory. Even in gravitation, the law is every thing and the theory is nothing. The law is, that all bodies tend to approach one another with an intensity which is directly as the masses, and inversely as the squares of the distances. It is absolutely indifferent to the astronomer how this result is produced, whether by universal attraction, or by universal repulsion, or by universal pressure, or by the impact of some assumed ether atoms. The practical astronomer has no call to decide for any of these possibilities. His sole business

is to apply the law, and determine the resulting positions and orbits of the heavenly bodies; and as long as the law holds, his calculations will be valid, even if we should adopt the theory that every planet is led or driven in its orbit by some angel or devil. Had Newton announced only the fact of gravitation, he would have said nothing either new or valuable. It is the law only which gives the fact significance. This is the reason why the notion of gravitation has been so much more fruitful than that of affinity or cohesion. We have the law in the former case, and can mathematically deduce its consequences. In the case of affinity, this is impossible at present, and hence the notion remains barren. In strictness, the law of gravitation itself is not known to be exact. All that can be said is, that no appreciable error has arisen from assuming its correctness. But when it comes to an explanation of this law, we are once more outside of the realm of fact and knowledge, and come again into the realm of theory and belief. But here the difficulties are so great, that one can hardly help sympathizing with the positivist's doctrine, that the function of science is only to find the law of phenomena, and never to inquire into causes.

A glance at the actual state of scientific theory justifies us in excluding it from the realm of knowledge. When the attractive theory of matter was accepted, it displaced the previous doctrine, that all material action is by pressure or impact. Its disciples soon grew so enamored of it, that they sometimes declared the notion of non-gravitating matter to be unthinkable. The ether

theory, however, has given them some light in this direction, and now they find it easy to conceive the impossible notion. We said in the last paragraph, that the law of gravitation does not explain itself, and, accordingly, we find the most diverse theories for its explanation. It seems clear to us, that universal attraction, or universal tendency of every atom toward every other, is the best and simplest statement of the physical fact; and if any explanation of the fact is to be found, it must be in assuming an omnipresent spiritual being. The doctrines of universal repulsion and impact involve many auxiliary hypotheses, and their mechanical possibility is far from evident. Nevertheless, both doctrines are not without advocates. The Cartesian doctrine, that all action is by impact, has been revived in Le Sage's theory, and this, again, has been renewed in the mechanical theory of gases. In these theories a universal rain of atoms is made to account for attraction and repulsion. Sir William Thomson says, that he has no faith whatever in atoms endowed with attractive and repulsive forces. Of course, no defender of these views denies the law of gravitation; but, while all agree as to the law, there is the widest difference as to its explanation. Whence it becomes clear, that not even the attractive theory of matter can rank higher than a rational probability. In chemistry it is still worse. There one theory has displaced another, until at present there is no theory which has general acceptance, or which is at all satisfactory. A few years ago, the electro-chemical doctrine was the reigning view, but it has fallen into complete disfavor. Since then we have

been surfeited with types and radicals, etc.; but it is hard to find any agreement among the speculators. Our text-books do, indeed, give us the most elaborate representations of the inner structure of molecules, but, except as a convenient fiction, the thoughtful chemist has little use for them. In Germany, this state of the science has led to the proposition to exclude it from all but the technical schools, on the ground of its lack of rational system. Mere heaps of facts do not train the reason, as they appeal only to memory.

Geological theory is still less at rest. Whoever has read much in geology will doubtless agree with the following opinion of a German geologist, F. Pfaff, quoted by Ulrici: "It is certainly an undeniable and surprising fact, that, in spite of the oft-mentioned 'agreement of investigators,' not a single geological phenomenon can be mentioned which would not be explained in the most diverse and contradictory ways. From the form and temperature of the earth, to the motions in the earth's crust, and the effects of water, which are taking place before our eyes, there is not a single geological fact concerning which the most diverse theories have not been, and are not, proposed; but of these theories there are none, however well-founded they may seem, which have not been doubted; and none, however ill-founded, which have not been believed."* The great trouble with geology is, that many hypotheses are possible, and no

*Ulrici: Gott und die Natur, p. 343. For examples of differing opinions in geology, see the second edition of Prof. T. Sterry Hunt's most instructive work, "Chemical and Geological Essays."

one is so firmly and necessarily deduced from the facts as to exclude the other possibilities. For example, none of the plutonic theories has been regarded as more firmly established than the doctrine of a fluid and fiery center of the earth. In particular, volcanic phenomena and the increasing heat as we descend into the earth, were held to make such a conclusion necessary. Both points have become very doubtful. The Sperenberg borings indicate that the common assumption of a regular increase of heat as we descend into the earth, is a mistake. On the contrary, the results pointed to a constant temperature much below the melting point of metals. In 1872 Professor Le Conte declared that "the whole theory of igneous agencies—which is little less than the whole foundation of theoretic geology—must be reconstructed on the basis of a solid earth."* We are all familiar with the long periods which evolution geologists have been accustomed to claim for the most trifling modifications. Having eternity at their backs, they did not hesitate to allow that only indefinite time would suffice to evolve the higher from the lower forms. According to Mr. Darwin, in the first edition of the "Origin of Species," (p. 287,) three hundred million years will not suffice for a very recent portion of geological history. But now the physicists claim, from calculations on the tidal wave, the form and internal heat of the earth, and the rate of dissipation of heat from the sun, that fifteen million years, at the utmost, are all that can be allowed

*Essay on the Formation of the Features of the Earth's Crust. American Journal of Science for November and December.

for geological transformations.* These conclusions have been before the world since 1868, without any damaging criticism. In one of his "Lay Sermons,' Mr. Huxley attempted a reply, which, in turn, was demolished by Sir W. Thomson. In 1876 Professor Tait reaffirmed the conclusion in the most emphatic manner. Whatever, then, the truth may be, it is plain that geological theory is still militant, without any immediate prospect of being triumphant. But, in case of a collision between physics and geology, there can be no question as to which is the law-giving science. Indeed no geological hypothesis can be viewed as established until it is seen to be a consequence of the laws of physics under the assumed conditions.

No more are the general theories of light, heat, magnetism, and electricity rescued from all doubt and obscurity. When, some years ago, Professor Tyndall's friend asked him if he had not a theory of the universe, the professor replied that he had not even a theory of magnetism. Whether he is any better furnished since he "prolonged his vision backwards, and discerned in matter the promise and potency" of every form of life, we cannot say; but it is certain that the most distinguished scientists remain without any theory which they regard as having more than a working value. In regard to all these subjects, a host of useful facts are known; it is the explanation, the rational comprehension, which is

*On this point, see Tait: "Recent Advances in Physical Science," Lect. VII. Also, two papers by Sir W. Thomson, in the "Transactions of the Geological Society of Glasgow," for 1868 and 1869, on Geological Time and Geological Dynamics. Professor Huxley's objections are criticised in the latter paper.

wanting. The present state of scientific theory, even in the basal, inorganic sciences, is emphatically one of fermentation, with no signs of a speedy settling. In biology, we have an epoch making discovery every few years, and the epoch and the discovery vanish together. To hear the biologist speaking of the certainties of biological theories, is enough to move the most saturnine to mirth, and to fill the humane bystander with compassion. The archeologist and ethnologist have long been allowed their claim, that disagreement with the Bible does not disprove a theory; but there is little hope for solid advance, until they grasp the far more difficult principle, that such disagreement alone does not prove a theory. There is a growing suspicion that an irreligious tendency is not of itself sufficient to justify a theory. Now, whatever the truth may be in the cases mentioned, these facts show that the greater part of science is a matter of belief only; part of it rational, part of it not so rational. One must, then, be always on his guard against the imposition which claims for scientific theory the certainty which belongs only to scientific fact. It is an auspicious omen that scientists are laying unusual emphasis upon this distinction. They have been forced to do this in self-defense. Reckless and extravagant dogmatizers have sought, by sheer force of noise and insolent intimidation, to capture science, and to whip in scientists to vote as ordered. The reaction which has set in is most healthy and prophetic of progress.

These facts will serve to show the value of a class of objections against philosophy and religion which may

all be summed up in the claim, that neither can demonstrate its conclusions. At best they can only reach a probable result, and thus they must ever stand at a great remove from the certainties of science. If we grant that philosophy is in this plight, we now see that physical science is no better off. A bottomless pit of acuteness is found by some writers in the claim that no hypothesis can be allowed in science which cannot be verified. Hence the hypothesis of a personal and intelligent First Cause is inadmissible, because it is essentially unverifiable. There is an air of great logical rigor about this canon; but unfortunately it is delusive. Before applying this dictum against theism, it may be well to point out that its scope is somewhat greater than those who use it seem to think. Can the hypothesis of evolution be verified? Can the origination of life from the lifeless be verified? Can the ether theory, or the atomic theory, or the nebular theory, or the original fluidity of the earth, be verified? In truth this objection, so far as it is urged against theism, is based on pure thoughtlessness. For how is a theory verified? If it be such that observation is possible, it is verified by observation. But most theories are not susceptible of such a test, and here verification takes another form. In this case, we reason back from the facts to a sufficient cause; and verification consists in showing that only this theory will meet the conditions of the problem. Where such a showing is possible, the theory becomes a matter of knowledge.

The demonstration of by far the greater part of scientific hypotheses consists simply in showing that the

facts are unintelligible upon any other assumption. No one ever saw an atom, and no one ever will. But the phenomena of matter are inexplicable except upon the atomic theory, and this fact is its only proof. No one ever saw the ether, but we cannot comprehend heat and light without assuming it. To show this, is to verify the theory. No one was present when the earth was fluid. We verify such an assumption only by showing that the present state of the earth is incomprehensible without it. The hypothesis of a spiritual author of nature is verified in the same way; and if it can be shown that the physical universe is unintelligible without this assumption, and that from every side we are led down to this ultimate affirmation, then the hypothesis of an intelligent creator has just the same kind of verification which the bulk of scientific theories have. But it is urged in rebuttal, that physical science must explain every thing by physical agents; and since an intelligent creator would be non-physical, the hypothesis is intrinsically inadmissible. This is merely an old saw of the positivists, which has played a greater part than is becoming. The aim of science is not to explain things in any particular way, but to find the truth; and if facts point toward theism, it is the duty of all truth seekers to recognize it. The earlier positivists urged the same objection against the ether theory. A material substance without weight, they said, is foreign to all our experience of matter, and hence the theory is, in its very terms, inadmissible. But the physicist is calmly superior to all such suggestions, and endows the ether, not with such qualities as the positivist allows, but

with such as enable him to explain the facts. The only care necessary in the process is, to make assumptions which shall not contradict existing knowledge or one another. In short, the notion that science has any other aim than to find the truth, whatever it may be, is a pestilent heresy.

Many reasoners upon the philosphy of science seem fond of playing the positivist upon occasion. Accordingly we meet, now and then, with the following profundity. They say: What help do we get from any of these theories? We explain light by an ether, but leave the ether unexplained. We explain gravity by a gravitating force; chemical affinity by chemical force, etc. But, in all these cases, what do we win more than a name? Do we get a shadow of insight into the facts by any such postulates? And, notably, in what is our comprehension of the world increased when we have explained it by referring it to God? Is God any less incomprehensible than the world? and, if not, are we not once more rolling the world on the tortoise's back, without in any way finding relief from the necessity of standing at last on nothing? But if it must finally come to this, why not stop with the first puzzle, the world of phenomena, and let the metaphysical elephants and tortoises go?

In the mouth of a positivist, this is intelligible and consistent; but, when uttered by any one else, it involves a complete misunderstanding of scientific method. The guiding principle in forming hypotheses is, the law of the sufficient reason; and the justification of a theory is not to be found in its utility, but in its providing an

adequate cause. Hypotheses are commonly only mental supplements by which the mind seeks to render the facts intelligible. Their value consists, not in removing the mystery of the facts, nor in giving the mind more power over the facts, but solely in enabling the mind to reconcile the facts with its demand for a sufficient cause. We can deduce no valuable practical results from the atomic theory; so far as utility is concerned, we are as badly off with this theory as with any other. The affirmation of the ether as an objective fact, is valueless for optics. The fact that the phenomena of light are analogous to wave phenomena in elastic fluids, contains all that is necessary for the mathematical development of the science. The doctrine of an objectively vibrating ether depends solely on the mental demand for a sufficient cause; it contributes nothing to practical optics. The doctrine of the soul in psychology, and of God in nature, contributes as much to practical science as the bulk of scientific theories, that is, simply nothing. At the same time, as necessary to our comprehension of the facts, they have the same evidence and value as the bulk of physical theories. Finally, the reason for making an hypothesis does not consist in its answering all questions. It may involve utterly mysterious and incomprehensible conceptions, and still be none the less necessary. The conception of an eternal spirit involves many unanswerable questions; but the conception of eternal matter involves, at least, as many more. The question, in either case, is not whether the conception is perfectly luminous to us, but whether it is demanded by facts? To play off the metaphysical difficulties of all ultimate facts against

theism, and take every thing on trust from atheism, implies neither mental nor moral insight.

In truth, all science and all thought are full of what the Germans call limit-notions; that is, notions which the facts force upon us, and which are perfectly clear from the side of the facts, but which from the farther side are lost in difficulty and mystery. They express an ultimate affirmation along a given line or thought, and can never be grasped from the farther side. When taken out of their relations, or when we seek to comprehend them without remembering the law of their formation, nothing is easier than to make them seem contradictory or absurd. We find such notions even in mathematics, in the case of the so-called imaginary quantities. These appear as the results of entirely rational processes, and not a little use is made of them in the higher analysis. But they express a limit where our ordinary conceptions of mathematical quantities vanish into the unrepresentable. So, also, in the case of the infinitesimal calculus. Here we deal with infinites and infinitesimals of different orders; so that while a quantity is infinite or infinitesimal, it may be infinitely less or infinitely greater than some other quantity. Now, if we cut these notions from their connections, and attempt to conceive them in themselves, the contradiction is palpable; and it will be easy to wax merry over the absurdities of the higher analysis.* What, it might be asked, is meant by a quantity which is infinitely smaller

* The statement of these difficulties has been made, once for all, by Bishop Berkeley in his papers: "Free Thinking in Mathematics," and "Defense of Free Thinking," etc.

than another which is already infinitesimal. The verbal difficulty would be equally great if we adopted the Newtonian notion of fluxions rather than the Leibnitzian notion of infinitesimals. But if we bear in mind the way in which these quantities are formed, or their relations to other quantities, there is no difficulty in dealing with them with perfect rationality and certainty.

Even in logic it is not difficult to start questions about the theory of reasoning, which admit of no easy answer. In physics the notion of the atom is a limiting notion. It is the unanimous voice of the scientists, that the atomic theory is supported by all the phenomena of matter. Thought itself finds it difficult to escape the notion; for if matter be truly composite, there must be indivisible ultimates. The notion of a composite where there is nothing simple, is an outright contradiction. To affirm the infinite divisibility of matter is to make the notion of matter an insoluble absurdity, like the notion of number without any unit. But on the other hand, who understands the atom? The metaphysical difficulties connected with it are so great, that the moment we lose sight of the facts which demand the assumption, we are tempted to abandon it. The ether doctrine is of the same kind. The physicists seem to have combined to make the notion as contradictory as possible. It must be as non-resisting as a vacuum, and more solid than steel itself. It is at once the plenum and the void. The mode of transmission is as difficult of conception as the ether itself. As long as only a single ray is to be transmitted, we can form some tolerable conception of the process; but

when we remember the actual conditions of the problem, clear conception becomes impossible. At any given point in our atmosphere an infinite number of rays are passing at the same moment, and in opposite directions. Moreover, these waves are of different lengths, even for light; but if we add the chemical and heat waves, the complexity is greatly increased. Now, in this case every particle of ether must be vibrating so as to forward all these waves of different lengths in all directions at the same instant of time. It is hard to see why a particle, under such conditions, should move at all, because for each impulse in any direction an equal and opposite one ought to exist. But if it move, and if the plane of its orbit must have a constant inclination to the direction of the ray, then it would seem as if the particle must be describing all the surfaces of a series of concentric ellipsoids at the same moment. The mathematician is apt to mistake the possibility of expressing such a doctrine by a series of equations, for a true conception of it; but plainly there is a difference between an abstract equation and a geometrical conception of its meaning. There is no need to further complicate the matter by attempting to make the ether account for magnetism, electricity, and gravitation. How the demands which optics makes upon the ether are mechanically possible, is past finding out.* Some speculators, pressed by these difficulties, are inclined to

* We said that the transmission of a single ray is easily conceived, but it is well known that the principle of transverse vibrations was for a long time regarded as mechanically impossible, and was one of the great stumbling-blocks of the theory. See Whewell's "Hist. Inductive Sciences," 3d edit., p. 101.

assume one or two extra ethers; but it is really insufferable that a new ether should be invented whenever a theory begins to limp. It is clear, then, that the ether-theory involves many difficulties, and no intelligent holder of it will pretend that it is ultimately comprehensible.

We need only refer to the doctrine of gravitation. All the facts seem to call for it; but the bare possibility of the fact lies beyond all comprehension. That the inert clod at our feet should be striving toward all other matter in the universe—that it should fill space with drawings toward itself—and that, too, without any consciousness either of itself or of its objects, and without any visible or assignable media of connection, is certainly a conception which is not perfectly luminous to an unbesotted intelligence. The materialist sometimes swaggers out with the assertion, that an eternal mind is so incomprehensible as to be quite inadmissible, but it fares no better with his own theory. For this demands the conception, not only of eternal matter, which is, to say the least, no easier than that of an eternal mind, but also the conception of eternal conditioned motion, which borders on a contradiction. The Spencerian finds the notion of self-existence obscure and incomprehensible, and thinks to mend the matter by denying self-existence, and affirming only dependent existence, which, after all, depends on nothing. In psychology and physiology also, we come down to similar ultimate notions which are forced upon us, but which can, in no true sense, be explained or comprehended. Such are the notions of space, time, cause, etc., and such

is the relation of sensation and consciousness to their physical antecedents. This latter question has been one of the black beasts of psychology from the beginning. To escape it, some have denied the soul, and have only increased the mystery. Others have denied the body, and have only made matters worse. Body and soul coexist and interact, but the method is lost in mystery. There is no surer mark of mental weakness than to take offense at the difficulties of some ultimate fact, and then exchange it for one in every respect more obnoxious to intelligence. At the same time, nothing is more common. After one has vindicated his acuteness by rejecting a received doctrine, he feels justified in accepting any thing. Hence the doubter of Christianity is prone to accept the profoundly rational doctrines of spiritualism, and the denier of theism finds great mental peace and satisfaction in atheism and materialism. But this is only counterfeit thinking. True reason looks before and after. It is never disturbed at the mystery of a notion. It asks, first, whether the facts call for it; and, second, whether the mystery would be any less on any other theory. If the facts do call for it, and if any other conception is equally difficult, then reason holds fast its beliefs.

Here, then, is our theory of knowledge. We begin with knowledge; but this is confined chiefly to rational principles, and the facts of direct perception and consciousness. These facts, however, are of such a kind that the mind cannot entertain them without supplementing them by affirming certain other facts. If the

case is of such a kind that the mind sees these other facts to be the only ones which will explain the given experience, then they, also, may be reckoned as knowledge. When the facts admit of more than one explanation, but still favor one more than another, that explanation cannot be regarded as knowledge, but as a scientific faith. The strength of this faith will vary, of course, with the number of possibilities, with the strength of the conflicting evidence, and with the distance of the conclusion from the premises on which it is based. We have, then, a center of knowledge, a border of faith, and poured around all, the great ocean of the unknown. It is both unnecessary and impossible to draw a sharp dividing line between what is known and what is believed. This is a question which every one must settle for himself.

Thus it appears that the method is the same for both scientific and religious investigation. Both must proceed from the known to the unknown, and both, when certainty cannot be reached, must content themselves with rational probability. Reason does not, indeed, give a very strong light, but it is the only light we have, and we can lay claim to rationality only as we follow it. If we declare its powers limited, reason itself must draw the limit, and declare the limitation reasonable. It is not rational to take what we like, and cover our inconsistency by appealing to the unknowable. It is not rational, in the failure of knowledge, to reject probability. It is not rational, when all the facts support a given proposition, to reject it because we cannot fully comprehend it. Least of all is

it rational, when a proposition cannot be strictly demonstrated, to conclude that therefore it is certainly false. This assumption has been so confidently made in atheistic discussions as to call for this disclaimer. Whether the divine existence can be shown to be necessary to an understanding of the world, or whether it remains, like most of our science, only a rational probability, each may decide for himself. We have only sought to make clear the principles which must govern such a discussion.

## CHAPTER III.

### POSTULATES OF SCIENTIFIC KNOWLEDGE.

THE discussion with the skeptic turned upon the question : Is knowledge possible? Assuming this to be answered in the affirmative, the question next arises: How is knowledge possible? This is the great question of philosophy.

To plain common sense, knowing is the simplest thing in the world. One has only to open his eyes, and the world stands before him just as it is. The process is so simple that no question can be raised about it, except by some mole of a thinker who delights to root in the dark. But, upon a little reflection, the matter is not so simple, and soon it becomes plain that a true knowledge of the world can be affirmed only as we make certain definite assumptions about the nature (1) of the world, (2) of the mind, and (3) of the relation between the two.

Not every philosophy of mind and nature is consistent with the possibility of objective knowledge. For example, the theory of knowledge held by the materialistic evolutionists is fatal to objective science. That theory has for its foundation the notion of an unknowable force, which is known, however, to be subject to mechanical and necessary laws. In its manifold "differentiations and integrations" it produces various

minds. All these are produced by necessity, and all that takes place in them—all thinking, feeling, and willing—is the necessary product of that only force which is the sole reality of the universe. All finite minds and persons are but its phenomenal and transitory products. There is but one actor and one thinker. But, plainly, it is irrational to speak of false and true thoughts in such a system; for one thought is just as necessary as another, and all alike are the product of the one unknowable. Now, when this unknowable says one thing in one mind, and takes it back or contradicts it in another, we are at a loss to know when to believe it. For example, the unknowable, as modified into the Spencerians, has written long accounts of itself, in which it declares the doctrine of mechanical evolution to be true; but then the same unknowable, as modified into other men, has criticised this doctrine, and emphatically rejected it. In the one place the unknowable gives out the doctrine as true; in another place it rejects it as the baldest absurdity and falsehood. Or take the feud between the scientists and theologians. It is the same unknowable which speaks on both sides, and with equal necessity in each case; and yet what a different report it gives! Or take the opinions of different generations: again, it is the same unknowable which has produced them all; but how fond it is of variety, and even of contradiction! All the absurdities now held, and that ever have been held, are its work. Even the antics of the fetich worshiper are the doings of this same unknowable. Are there evil and folly in the world? both have an unknowable parentage. And, seeing that the

unknowable has changed its mind so often, who knows what it may yet do, or that it will finally content itself with the evolution philosophy? Now, we cannot speak of true and false without the possession of some standard, for truth means the agreement with the standard, and error means the departure from it. But on this theory the standard cannot be the necessity of truth and the non-necessity of error, for we are expressly told that all opinions are alike produced by and from necessity. Truth, then, can be found only by taking a vote. If the unknowable says yes, oftener than it says no, we may conclude that on the whole it inclines to the affirmative. But, alas for truth in that case! Unfortunately, even this method is worthless; for as the unknowable is often in error, it might be in error in the vote. We hold opinions different from those of our ancestors; but they differ from us as much as we from them, and by the same necessity. Who shall decide between us? The unknowable has contradicted itself so often, that we can never know when it does speak the truth. Indeed, the doctrine is, that it never does; for not one of the opinions about itself which it has produced is found to have any likeness to reality. This seems an absurd and farcical result, but, if the theory be true, it must come to this. In short, the evolutionist of this type can give no account of error, and no valid test of truth. He can properly recognize no distinction between truth and error, for all opinions are fleeting. The unknowable is forever weaving and forever unweaving; and, sooner or later, all things and opinions pass. Laws and principles flow as well as

things. Of course, no science is possible on such a basis; but the evolutionist has a ready answer. Uncritical common sense has its own views, and among these are the reality of the finite mind, and the distinction of truth and error. When, then, the evolutionist is pressed with the skeptical consequences of his own theories, he has but to fall back on this unreflecting common sense; and when common sense promptly repudiates the consequences, the evolutionist mistakes the fact for a vindication of himself. Meanwhile, the philosophical critic hardly knows whether to be vexed or charmed at the innocence of the procedure. Innocent it certainly is, and denotes that the beginnings of philosophical criticism have yet to be mastered. Every theory of necessary development which is not based on a free creation leads to like skeptical results. The basal power of the universe is either rational and self-determining, or it is blind and necessitated. In whatever form the latter view may be held, it leads to the destruction of knowledge and science.

We reach the same skeptical conclusion from another point of view. Rational principles in application must be above all doubt, if we are to have faith in the conclusions. But the doctrine of the mental evolutionists is, that our primal beliefs, as well as all others, are generated in us. Apart from experience we know nothing. The mind is totally unable to know any thing on its own account. All beliefs, then, fundamental and derived alike, represent only the deposit of experience in us. In our anxiety to retain faith in objective knowledge, it occurs to us to ask whether this experience might not

have been otherwise, or whether it will always continue as it is. Do we know that the universal and abiding laws of the universe have so revealed themselves in our experience, that we are secure against the reversal of all our laws of thinking? Are we even sure that there are any fixed and universal laws in the system? The scanty experience of the whole race is far from proving so large a conclusion. Do we know that the cohesions among our ideas, which now determine our beliefs, will not shift in the future so as to determine us to contradictory beliefs? The writings of most mental evolutionists already reveal a strong tendency in this direction. Unfortunately, we have no such knowledge. If derived from experience, all primary beliefs must be doubtful; and yet, as principles of investigation, they must be unquestionable. Here is the dilemma of the mental evolutionist: he cannot prove his theory without assuming the certainty of first principles; and as soon as the theory is proved, they become uncertain. The way in which this difficulty is escaped, is one of the most striking examples of that philosophical innocence which is so common in evolutionist circles. An outer world is first assumed in intelligible relations, and with constant and rational laws, and when we ask for a reason for the constancy of intellect, we are referred to the rational universe. But how do we know that there is a constant and rational universe? We assume that. These philosophers have even been known to bluster when charged with not providing for the constancy of the mental life. It would be a hard-hearted critic, indeed, who would not be disarmed by such childlike sim-

plicity. We repeat, that evolution as opposed to free creation, cannot be made a fundamental principle without destroying science.

The associationalist, also, is in the same dilemma, and commonly emerges by the same illegitimate assumption. Why do we believe and think about any thing as we do? The answer which he gives, when stripped of its verbiage, reduces to this: We think and believe as we do, because we have become used to it. Habit is at the bottom. There is no such thing as necessary truth. Two and two may make five; and, if so, they may make any thing or nothing. Events need not have a cause. We are used to thinking so, and now we cannot help it; but, in fact, one thing is just as possible as another. There is no rational and no absurd, no consistent and no contradictory; but every thing is indifferently one or the other, as we have learned to think. This doctrine, though commonly held in the interests of skepticism, is the extreme of credulity and superstition; yet, strangely enough, its holders are the most sensitive of all critics to the irrationalities of religion. No one has a more vivid intuition, at such times, of what can and cannot be than the associationalist. Theism, miracles, divine control of nature, and divers other doctrines, are pursued by him as with the besom of destruction. They are irrational, absurd, impossible; nevertheless, he holds that two and two may make five, and that there is no necessary truth.

A similiar mode of reasoning applies to every materialistic theory. In such theories, thought is a product of the brain, just as bile is a product of the liver.

But as we never speak of true or false bile, or of true or false blood, so we can never, with any sense, speak of a true or false brain or of a true or false thought. The consistent materialist can know no true or false, no high or low. These are ideals of the mind, and have no objective existence. For the materialist, the actual is all; and the ideal is delusion. He can know only what his brain secretes. When it produces true thoughts and when false ones, or whether it ever produces true thoughts, he cannot tell. He may attempt to distinguish between true and false by saying that true thoughts result from the normal action of the brain, while false ones result from its abnormal action; but this distinction will not save him. For normal means, according to the standard, and abnormal means, not according to the standard; and the materialist has no standard. He, like the evolutionist, may attempt to reach a standard of normality by taking a vote; but this would be especially unfortunate for the materialist. For brains are so constructed, that they almost invariably decide that there is a soul, a God, a moral government of the universe, and a future life. But as the materialist rejects these notions, although held by the majority, it is clear that he cannot determine what is normal in brain action by appealing to a vote; for in that case, we should have to conclude that the materialist has an abnormal and untrustworthy brain. On the other hand, it is a rather startling proposition that the only normal brains in the world belong to a few materialists, who, as a class, have never manifested especial power in any direction except that of self-stulti-

fication. In that case, it would become a serious question whether a normal brain would be an especially desirable possession.

Here the materialist may object that all this pleasantry is quite irrelevant, that he has a standard of truth and error, and that it is not determined by any vote. This standard is simply results. Those thoughts and views are true which work well; and those are false which work ill. In a rational system such a test would be valid; but the materialist has no such system. Moreover, he fails to see that in setting up such a standard, he has fallen into the jaws of his black beast, Teleology. In assuming that the useful is the true, he either assumes an unexplained harmony between the true and the useful, or else he assumes that the useful is the only true. The former assumption entangles us in the doctrine of design; and the latter is a complete abandonment of science in order to hunt for our own interest. And here again we fall into difficulty, for if we allow that the useful is the only true; the question arises, Useful for what? Of course, useful to promote well-being; but what well-being? Physical, or mental, or moral well-being? It will hardly be claimed that materialism elevates and enriches the moral nature; or that it leads man to think highly either of himself or of his kind; or that it leads to social and political prosperity. In spite, too, of the materialist's "normal brain," the doctrine makes an equally sorry show in producing mental power. If, then, we are to test its truth by its outcome for well-being, we can hold it only by showing that the supreme end of man is to

develop a body, and that materialism is especially useful in promoting the interests of the animal nature. The normal brain is that which takes care of itself; and the test of truth is self-preservation. Moral aims and scientific truth, so far as they have no physical value, must be voted not merely worthless, but delusion; for the test of truth is physical preservation. Hence the inhabitant of the sty would be the prince of materialistic philosophers; he is not troubled by delusions, and he preserves himself. He has, then, the deepest truths of the universe. Of course, the materialist will indignantly repudiate these conclusions as caricatures; but he is more given to repudiating than to reasoning. Let him for once forego indignation, and give his standard of truth and error, or his test of a normal brain. It will be an unusual, but profitable subject for reflection.

Now it is not our purpose to criticise any of the preceding doctrines as to their truth and falsehood, but only to show that they are fatal to scientific knowledge. And we think it must be plain, that it is not indifferent to science what kind of a philosophy we hold. On the contrary, the philosophic and anthropologic problems concern the very life of science. What is the mind, and what is its relation to reality? What is truth, and how may it be known? In a skeptical time, these questions must be answered before there can be any question about science. But language allows the formation of such phrases as materialistic science and atheistic science; and confusion and incapacity accept them as representing great facts; where-

as, they are as contradictory as the phrases square circles, wooden irons, etc. The existence of rational science is involved in that of the theistic and spiritual philosophy. We lay down, then, the following thesis: (1) Unless we admit the existence of the mind with an outfit of rational principles, and for which principles it needs no proof beyond its own power of insight, there is no rational science possible; (2) Unless we admit that these rational principles are also the laws of reality, or that reason is law-giving for objective fact, again no rational science is possible; (3) Unless we allow that the basal fact of the universe is a free and rational creator, there is no rational science possible.

The first part of the thesis needs no further proof. The attempt to deduce first principles from experience always results, when thought is tolerably clear, in dragging all rational knowledge down into ruin. Empiricism cannot deny that two and two may make five, although but one empiricist has had the courage to avow it. On such a theory not even mathematics can be saved; where, then, shall the other sciences appear? Since the time of Hume, empirical philosophy has been a patent anachronism; and the zeal with which its claims have been upheld, clearly disproves the notion that thought never goes backward. It was a long time before the empiricists understood Hume, and then they ignored him. By consequence, the most of our English philosophy is in the crude, uncritical state in which Locke left it. The method by which they cover up their inconsistency has been already referred to. In practice they hold the common sense view of reality

and rationality. In polemics, when on the offensive, they hold the sensational view; but when pressed with the skeptical consequences of their doctrines, and forced to act on the defensive, they fall back on common sense, and make sundry remarks about the absurdities of skepticism. Neither madman nor fool, they say, could doubt the testimony of common sense about the external world; and thus they think to escape from themselves. But plainly what is needed is, not a judgment about the sanity of the skeptic, but a showing that these insane consequences do not necessarily follow from the principles of empiricism. Such a showing would be relevant, and is sadly needed. To forget that the existence of a rational and objective universe is one of the great battle-grounds of philosophy, and calmly beg the question in the interests of empiricism, is a fact which gives an accurate measure of the philosophical insight of empiricists. When consequences are insane, it does not prove that they do not follow from the premises, but rather that the premises are insane also. We are persuaded that this simple principle, if fairly grasped, would work a revolution in empirical philosophy.

The second part of our thesis claims that the laws of reality and of rationality must be identical, in order to make science possible. This borders on the self-evident. The unintelligible cannot be understood. The irrational cannot be thought. The astronomer cannot allow that two and two may anywhere make any thing but four. He cannot allow that the principles of rational mechanics can be subverted or defied by any material

reality. He regards those principles as law-giving for the heavens. And every-where the scientist assumes that whatever rationally flows from any fact of reality is as real as that fact itself. The syllogism is sovereign, and nothing can withstand its might. The real aim of the scientist, though often he is not fully conscious of it, is to detect the reason in things. He assumes that nature is not merely a complex of phenomena; it is also a rational system. Nature is concrete reason. In brief, every attempt to form a theory of things assumes that the world is composed of intelligible elements in intelligible relations. This assumption cannot be escaped by any philosophical school whatever. The evolutionist may assume that reality is prior to rationality; but at the same time he must allow that rationality is but the thought-side of reality, and parallel with it. Without this assumption, our thoughts have only a subjective validity, and objective science perishes. Without allowing the mind an independent insight into rationality, it would puzzle the evolutionist to justify his assumption of a real and intelligible system of things; but we omit to press this difficulty any further, and point out that the evolutionist as well as the rationalist must assume the identity of the rational and the real. His own theory of knowledge ought to prevent any objection; for it expressly teaches that the laws of thinking are the results of an adjustment of thought to thing which has been going on during the life, not only of the human race, but also of the lower forms from which we descend. The steady objective laws, which the evolutionist assumes without warrant, have pro-

duced and reaffirmed the laws of thought during so many æons that we may now regard their agreement with fact as complete. Besides, they have been so integrated by heredity that they now appear in us as *a priori* mental forms which we cannot escape. For us, then, who inherit the ages, there is a true pre-established harmony between the laws of our thinking, and the laws of the external universe. But by a most unaccountable inconsistency, most philosophical evolutionists overlook this implication of their doctrines, and take refuge in that suicidal notion of the unknowable. Any thing valuable which such thinkers may thereafter say, must be regarded as clear gain; just as in monomoria and monomania in general, we rejoice that any of the faculties have been left intact.

This principle of the identity of the rational and the real as the postulate of science, is of such importance as to warrant us in being unusually tedious in its exposition and illustration. We set off, then, by a somewhat roundabout way, in the hope of more clearly establishing it.

The activity of the mind in knowing is a principle which rational philosophy will never consent to give up. It was gained only after centuries of criticism; and the failure to grasp it is at the bottom of the chief errors both of ancient and modern philosophy. The doctrine contains the implicit refutation of empiricism, because it shows that experience itself, on which the empiricist relies, is impossible without a constructive mental activity. The empiricist's vision rarely enables him to perceive the mental elements which underlie sense-ex-

perience, and hence the imagination that sense-experience can be the source of rational principles. Hence, also, the plausibility of the claim; for there is no great art in bringing out that which is already in. But knowing is not a passive reception of ready-made knowledge; it is an active construction and interpretation by the mind of its raw material. But owing to the influence of habit, this doctrine is not readily recognized. It is necessary, therefore, to illustrate it.

How does knowledge get into the mind? The answer of unreflecting common sense would be, that a picture of the things we see passes into the mind. This was the answer of philosophy until the time of Descartes. Things were supposed to be throwing off images of themselves, which entered the eye and ear, and thus reached the mind. But now we see that this is a mere figure of speech. Things are not throwing off pictures which are then transported into the mind, but knowledge originates in the mind. When two men speak together, no ideas leave the mind of the one and ride across the airy waves into the mind of the other. The fact is, that upon occasion of certain ideas in the mind of the one, certain vibrations are produced in the air, and finally in the ear of the other, and that other mind then constructs out of itself the corresponding thoughts, feeling, etc. But nothing leaves the one mind, and nothing enters the other, in any spatial sense. The new knowledge is constructed by the mind in itself. Or, suppose one writes a letter; except in a loose figurative sense, there are no ideas in the letter. Ink-scratches on paper are all that is really

there. But when the receiver gets the letter, his mind will interpret those scratches back into the ideas and feelings they were intended to represent. Here, again, we see that it is a mere figure of speech to talk of knowledge as going into the mind; in every such case the mind creates its ideas from within; and the possibility of communication plainly depends upon the assumption that both minds work alike, and that the same symbol shall have the same meaning for both.

In these cases the constructive action of the mind is evident. The symbols are totally unlike what the mind perceives through them. Now, strange as it may seem, all perception, even visual and tactual, depends upon a similar mental reading of signs, which have no more resemblance to the object perceived than the letters of a book have to the ideas conveyed. And just as the mind constructs the thoughts and feelings corresponding to the words of a letter, so it constructs within itself the conception of external objects out of the signs of sensation. According to physiology, the immediate and only physical antecedent of perception is vibration in the brain. The physical raw material of perception consists entirely in nerve vibrations of varying rapidity and length. The psychological raw material consists solely of varying intensities of sensation. This is as near to the outer world as the mind ever comes. Let there be an external world of things in space and time, and quantitatively and qualitatively different, the only hint the mind gets of the fact and of all these distinctions is such as varying intensities of sensation can convey. But clearly, these bear no more likeness to the external facts

than the ink-scratches on paper have to the ideas they represent. Yet this formless stuff is all that the mind has to work upon, and out of it it builds and projects its knowledge. It has no copy by which to go, and no law but its own. As letters and sounds are symbols of thoughts unlike themselves, so sensations are the symbols of things unlike themselves; and as letters and sounds demand a constructive action of the mind before the thought can be reached, so the symbols of sensation demand a constructive action of the mind before things can be perceived at all. Thought does not exist in the alphabet, but in the mind which uses it and assigns it a meaning. No more does the outer world exist in sensations, which are the alphabet of realities beyond them; it exists only for the mind which, through sensations, discerns or affirms a world of reality beyond them. Perception proper does not exist at all until the raw material of sensation has been differentiated, and interpreted, and systematized. But the principles of interpretation and differentiation must be in the mind itself. If the language faculty be wanting, language must be forever meaningless. Or, even if we lack only the law of the given language, it is a sealed book unto us. If, then, the mind have no principles of interpretation in itself, it can never get beyond the plane of sensation, and attain unto perception and cognition. But it has its own principles of interpretation. The law of causation enables it to refer the sensations to an external reality of some sort. Thus the distinction of subject and object is founded, and also that of cause and effect. The law of identity, together with the law of causation, gives rise

to the distinction of number in objects. The principle of being, or substance, produces the distinction of substance and attribute. The principle of space enables the mind to arrange things as here and there. The principle of time underlies their arrangement, as now and then. The principle of quantity permits the distinction of more and less; that of quality allows the distinction of kind. None of these distinctions are found in the sensations, but are brought into them by the mind as principles of interpretation. This does not deny that they may also be objectively real; but primarily they are forms of our knowing, and are carried into things rather than found in them. Our conceptions of things, with all their manifold distinctions of cause and effect, substance and attribute, space and time, quantity and quality, are but the forms which the mind builds up out of the raw material of sensation, and when these conceptions are objectified they stand to us for the external world. As our perception of another's thought is simply our own thought attributed to him, so our perception of the external world is simply our conceptions objectified. This is so strictly the case, that if we suppose the external world to fall away, and the present orders of sensation to be maintained by an omnipresent spirit or otherwise, there is not the slightest ground for thinking that we should become aware of the change. Or, if we assume a mind working under the same laws as our minds, which should never come in contact with things, but in which the same order of sensations should be maintained as in us, again there is no ground for assuming that the

world would not appear to him as it does to us. In the perception of familiar objects this constructive action is overlooked, but it becomes prominent, even to the unreflecting, when the object is unfamiliar, or vague, or at a distance. The true heavens are not seen by the eye, they are affirmed by the mind. For unaided sense-perception, the heavens are only a low arch studded with points of light; but reason, reflecting upon the facts, posits infinite space, and fills it with worlds and suns. Here the mind posits or affirms its object; and the same is true even for the most familiar objects. So far as they exist for the mind, they are posited by the mind. And here is a fathomless mystery. The stirrings of sensation within the mind, arouse it to build up conceptions of things and persons, and to objectify these conceptions, or to affirm them, as objective realities. How this can be we know not, and yet we are forced to admit both that the object thus affirmed really exists, and also that to perceive the object, the mind must construct the object within itself. Now, throughout this process, the mind is speaking its own language. This does not, indeed, hinder that it may also be speaking the language of things; but what we wish to emphasize is, that all perception is a mental activity, according to certain subjective forms and laws, and that these are primarily forms of thought, and not of things. On account of this mechanism of knowledge some have denied that our conceptions can ever be known to correspond to reality. We have discussed this question in the chapter on skepticism. Here we point out, that if our objectified conceptions do repre-

sent things as they are, it can be only as the forms of nature and the forms of thought are identical. That mind speaking its own language, and working according to its own laws, should agree with things which also speak their own language and have their own laws, is forever inexplicable without the assumption that nature is only thought realized in objective fact. Hence not science alone, but even the simple perception of things as they are is impossible, except as nature is cast in the mold of thought. We conclude, then, that whatever will speak to man, whether it be nature or God, must come into the forms of human thought if communication is to be possible.

It may be worth while to attempt another proof of this proposition. The nature of knowledge itself necessitates it; for all knowledge depends upon distinction. An object exists for the mind only as it is distinguished from other objects. We see things by the differences of light and shade. In unbroken light we should see no more than we do in perfect darkness. Always to have the same sensation is equivalent to having none. There will be, indeed, a difference for the organism, but none for the mind. Hence we never perceive the air until it moves. We are unconscious of the pressure of our clothing, so long as it is easy and constant. The foul atmosphere of a room is not perceived by the inmates. The organic conditions of sensation may be fulfilled, but the perception can only take place through difference; and this is lacking. The indistinguishable or indiscriminable does not exist for thought. The object must be distinguished from the

subject, and from other objects, before it can be properly perceived; or rather, perception consists in this process of distinction. But distinction is impossible without comparison. A thing cannot be known as either like or unlike another, unless it be compared with it. But both comparison and distinction assumes norms, or points, of comparison and distinction. If a thing be like another, it must be like it in some point, in form, or in position, or in quantity, or in quality, etc. If there are no common elements in things, they are neither like nor unlike, but incommensurable; and each would be the negation of every other. In truth, absolute unlikeness can exist only between being and the void. This differentiating action of the mind is not consciously recognized in the simpler activities of the mind, but it becomes very prominent in the higher operations of intelligence. But as a law of the mental constitution, it underlies the lowest forms of the mental life. We have seen that not even sensation can exist for the mind, or be recognized by it as a mental object, without being discriminated from its surroundings, and from the mind itself. Thus, we see, that there are norms of distinction in the mind which are prior to all sense-experience, and which constitute the only possibility of sense-experience. The associationalist makes the association of ideas the deepest fact of the mind; and fails to see that we must have ideas before they can associate, and that we cannot have ideas without the differentiating and constructive action of the mind. The ideas to which he appeals are, themselves, mental constructions; and the sense-experience on which he builds is composed of ra-

tional factors. Mental activity begins back even of conscious sensation itself; much more does it underlie our sense-perceptions. To offer, then, to construct philosophy on the basis of sense-perception, with the aim of excluding all rational elements, is the Rip-Van-Winkleism of speculation. If the associationalist object that this activity does not appear in consciousness, we reply: (1) That which underlies and conditions consciousness, can only be reached by reasoning from the nature of consciousness; and (2) the wonderful processes of association upon which the objector builds, are equally below consciousness, and, in addition, are not very cogently inferred from the facts. However, not to lose ourselves in the depths, we shall not attempt any list of these norms of the mental activity, or categories of thought, as they may also be called. Whoever wishes to see the fullest and best development of the form of Kantianism which we are supporting, should consult Professor Ulrici's *Logik*, which, unfortunately, has not yet been translated. It is sufficient for our purpose to refer the notions of cause and effect, of being and attribute, of dependence and independence, of space and time, of quantity and quality, as examples of such norms. These are not objects of perception; they are, originally, principles of knowing. They are the norms of distinction by which the mind proceeds in transforming sensation into knowledge. Sensation does not bring them into the mind; but the mind brings them into sensation.

This view receives a negative support from all consistent empiricism; for the consistent empiricist, from

Hume to J. S. Mill, has admitted the impossibility of getting them from sensation. Hence, Hume denied the reality of substance, or being, and made the law of causation a delusion. J. S. Mill follows in his wake. Substance is not given in sensation; and hence Mill denies substantial being. All that he will allow matter to be, is a "permanent possibility of sensation," which is only an ingenious phrase for concealing the difficulty from both himself and his readers. Mind, in like manner, is reduced to a succession of feelings without substantial support. The same difficulty appears in his theory of predication. Since matter is only a bundle of qualities, the categorical judgment becomes the absurdity of affirming one quality of another. For example, gold is yellow; but gold is only a name for the sum of certain qualities of weight, density, malleability, color, etc.; and the judgment becomes: certain qualities of weight density, etc., are yellow. But this is absurd; and hence, we must change the simplest forms of logic, and say that certain qualities belong together, though for the sake of good sense and the conventions of language, we may always use the old form. But this belonging together is a treacherous phrase. It indicates a kind of inner connection which secures the thing from breaking up and vanishing. We must, then, guard ourselves against this delusion by saying that the judgment, gold is yellow, only means that, in our experience, certain qualities, of which yellow is one, have always been found together. The empiricist can adopt no other theory of predication; but, unfortunately, common sense protests that it cannot even understand what is meant

by qualities which are qualities of nothing. Space, too, cannot be found in sensation, and Mr. Mill, in obedience to his philosophy, aims to explain it away. Causation and dependence are also denied, and reduced to temporal sequence. In short, Mill was too clear-sighted to fancy that the categories, as objective facts, can ever be won from experience; his whole strength was devoted to explaining them away. To do this, he was forced, first, to twist the categories out of all likeness to themselves; and, second, to attribute to association utterly imaginary powers. That consciousness itself depends on an application of the categories seems never to have occurred to him. Finally, the outcome of his philosophy was nihilism, and the denial of rationality.

It might occur to common sense that the existence of things as different must result in our seeing them as different; but this notion disappears upon reflection. Even the simple differences of quantity and quality depend for their perception upon different effects in us. If the mind were such that it did not react differently upon different impressions, the most highly differentiated world would be perceived only as dead uniformity. Such is the world of molecular motion in things about us. The most complex and wonderful activity is going on in the clod at our feet, but we fail to perceive it because it does not impress us strongly enough to arouse the soul to reaction. The waves of light may make melody, and the morning stars may still sing together, but we hear them not. Hence if the categories existed in things as the universal predicates of all being, they could never be reached by the mind unless they also ex-

isted in the mind; for without that complex qualitative nature which enables the mind to react differently upon its impressions, and distinguish subject from object, substance from attribute, cause from effect, quantity from quality, space from time, etc., the world of differences would go unrecognized. The categories may be in things, but primarily they are in the mind, and represent the norms of those basal differentiations by which the mind attains to consciousness and knowledge.

This, then, is the point to which we come: In opposition to empiricism we hold that knowing is not a passive reception of impressions, but an active construction of them into rational system. Below perception, and below conscious sensation, there is an activity by which the mind prepares its objects for knowledge. This activity is fundamentally one of distinction, or differentiation. As such it must have norms of distinction. These are the fundamental ideas of the mind. As such they are to us the interpreters of the universe. The symbols of sensation acquire meaning only as they fall into these mental molds. That they inhere in the nature of the mind as the laws of its procedure is proved, first, by an analysis of knowledge and consciousness, and, second, by the failure of empiricism to account for them without either denying them or begging the question. By their use the mind constructs from the formless material of sensation a thought of the external universe, and this thought is as near to the outer world as the mind ever comes. As our perception of another's thought or feeling is our own thought or feeling attributed to him, so our perception of the external world is

solely our conception of it objectified under the mental forms of being and attribute, cause and effect, space and time, etc. If now we assume that our thought truly represents things, and otherwise our science is delusion, we must admit that the forms of thought are also the forms of reality, that things are but thoughts made substantial, and that thoughts are the ideal forms of things. A true and comprehensive thought of a thing differs from the thing in nothing but in substantiality. But whatever flows rationally from the thought must also flow from the thing. For example, the physicist regards the physical universe as subject only to mechanical laws. In that case the material system is nothing but crystallized mathematics, and the laws of mechanics are law-giving for the universe. What calculation demands, we expect reality to fulfill. We constantly overlook this wonder. The mind spins a system of abstract and impalpable relations; and they prove strong enough to bind with invincible bonds the whole system of physical reality. They are airy creations of the mind, and yet they are the chief instruments of science. How mathematical conceptions can be set in reality so as to be its inmost law, involves the mystery of creation; but the physical system is such a realization. And, in general, the entire system of material reality, so far as intelligible and a subject of science, must be regarded as crystallized mind. Its laws are the laws of thought; its forms are the forms of thought; and if there be any reason for viewing it as dependent, we must regard the power which realized it as one proceeding according to

the norms of intelligence; so that the categories by which we comprehend the world are the rules by which it was originally realized. But as the categories are primarily norms of mental action and manifestation, and since the physical universe is but these categories realized, there is good reason for believing that the simple existence and knowability of the world points to a rational power which is realizing rational principles in it. At all events, the facts are opaque and unintelligible on any other assumption. The mental evolutionist may object that the mental laws are accounted for by our experience of the outer world; but (1) he forgets that the mental laws and forms antedate and condition all experience; (2) he assumes without warrant a rational objective world; and (3) he assumes that the physical system is ultimate. If he will reflect upon the first point, and prove the two assumptions before further theorizing, it will be of value to himself, and a relief to his readers. The materialist may, also, bring up objections, but we have seen that his system destroys all knowledge, and we are arguing only on the assumed possibility of science. But allowing this theistic argument to pass for what it is worth, we are content with having shown, (1) that knowing is an active process, and (2) that the possibility of objective science depends on the assumption of perfect parallelism between the rational and the real, between mind working according to its laws and things working according to their laws.

Here a scruple may arise which it is well to notice in passing. If the real is rational, and if the reason is law-giving for reality, what need is there for induction

and observation? And, on the other hand, have not *a priori* deductions been the bane and disgrace of science? This objection rests upon an illegitimate conversion of our proposition. Science must always hold that the real is rational, but it does not follow that the rational is always real. The confusion of these propositions has been a fruitful source of mistake with idealistic philosophers. Accordingly, many purely formal systems have been built up, and, because they were logically consistent, they were viewed as objectively valid. The error, however, was not in the principle, but in its application. In order that the development of thought should correspond to the development of fact, the thought must accurately comprehend the fact. If the two have any parallax, there will be discord in the results. Now we human beings, who dwell apart from the center, and not at the root of things, are seldom able to get so accurate a conception. Rational mechanics is the only realm where our thought fully grasps the fact, and there we do regard the development of thought as equivalent to that of fact. What the equations call for, the flying planet must fulfill. And the theist cannot doubt that there is a stand-point, though perhaps the Creator only can reach it, whence the entire physical universe might be seen to unfold with logical necessity from the basal idea upon which it is built. Even the mathematician is impatient of the sciences of observation, and dreams of the possibility of so comprehending the physical system, in a vast series of differential equations, that we might read its entire history from eternity to eternity. But we cannot grasp the all-con-

ditioning thought, and our insight even into things about us is small. Hence the need of observation and experiment. Moreover, the laws of reason, as the frame-work of all intelligible systems, do not account for the peculiarities of any system. They merely secure intellectual sequence and consistency. To distinguish between many systems, all equally consistent with the laws of thought, we must rise to the notion of purpose. Either we must give up all hope of understanding the system, or we must appeal to teleology. In this case, purpose would be the determining principle of the system, and the logic of reality could be fully understood only through the end at which it aims. But both the end and the means are largely hidden from our sight; and hence, while affirming the rationality of the real, we must still allow that induction will always have to assist deduction in dealing with objective fact. Hegel's immortal merit consists in his thorough-going identification of the real and the rational in the sense in which we have explained it. The rock on which he split was oversight of the weakness of the human mind, and the resulting attempt to give it the position of the absolute reason.

Another scruple may also be noticed. It will occur to many that it is a matter of no significance that things should exist in rational relations, and obey rational laws, because these relations and laws are necessary principles of all existence. They are metaphysical necessities, and hence point to no reason in which they exist as modes of manifestation. To uncritical common sense this position seems self-evident truth; to reflective thought

it is palpably false. For we know nothing of ontological necessity; we know only rational necessity. To take the simplest mental notions, space and time are not metaphysical necessities, but mental principles. They are never objects, but forms of arrangement. Hence, also, mathematics affirms no ontological necessities; it is only the science of these rational principles. We cannot affirm the objective validity even of these simplest principles without identifying the rational and the real. It is utterly absurd to ask what would be true for the real, if it be allowed to be irrational. Such a real would know no law, no necessity, and would admit of no interpretation and prevision. Hence we can never affirm an ontological necessity except as reason is law-giving for being. This, however, does not favor agnosticism, for the affirmation of being without relation to thought is an utterly thoughtless performance. Agnosticism rests upon the amazing notion that a rational experience, or a world composed of rational elements, justifies the assumption that fundamental being is without any essential relation to reason; whereas, in truth, no being can be rationally affirmed whose essence and law are any thing but reason.

Thus far we have used rational as meaning harmony with the laws and forms of thought which condition all mental action. But rationality, in this sense alone, is not sufficient to make science possible. Nature might be crystalline in its elements, and the outcome might still be unintelligible. The laws of motion and the principles of mechanics find as absolute illustration in

the whirling leaf or rushing torrent as they do in the motion of the planet, but, owing to the complicated conditions in the former cases, we are wholly unable to trace them. It is, therefore, quite conceivable that with perfect rationality in the elements, the outcome should be without assignable order. There must be a certain arrangement of the constants of nature so as to produce an intelligible phenomenal order. Hence, in our scientific investigations we must further postulate (1) a certain openness or fairness in nature, and (2) its rationality in the higher sense of the fit adaptation of means to ends. With regard to the first point, it is plain that in our study of things we are confined to surface indications; and, without the assumption of truthfulness on the part of nature, we are hopelessly adrift. It is quite conceivable that wheat should be mimicked by poisonous plants, which should be known as such only by their effects. It is equally conceivable that nature should be just as tricky throughout—that here, as well as in society, appearances should be deceiving. In that case, the apparent uniformities of nature would be all misleading, and a mental existence would be impossible. The openness of nature is as necessary a postulate of science as the uniformity of nature. We find the assumption every-where. For example, the theory of descent is based upon sundry resemblances of the animal kingdom. Of their production we have no direct knowledge, but they are assumed to point to a common genealogy. The pointing in this case is not very clear, for the possibility of arranging species in ascending series no more points to such common origin than the

possibility of arranging chemical combinations, or crystals, or equations in systems of growing complexity, proves genealogical relations. The only fact patent in these cases is the rational order. But, allowing the argument for descent, it is plain that it assumes, to an almost extravagant extent, the truthfulness of nature. Who knows the resources of reality? Who knows that birth is the only means of producing resemblance? Is not birth in thought infinitely more potent in this direction than physical generation? Moreover, if descent is to account for the likeness, what shall account for the difference? If the scanty likeness point to a common genealogy, much more should the striking unlikeness point to diverse origins. But, letting the argument on either side pass for what it is worth, it is clear that our science must assume, not only the rationality of being, but also a certain ethical condescension of nature to the weakness and wants of the human mind. The skeptic may deny the objective validity of this postulate; but it cannot be dispensed with if we are to have faith in science.

Our second point was, that rationality, in the sense of a fit and exact adaptation of means to ends, is a necessary assumption of science. This follows directly from the character of all scientific hypotheses. All these are formed, as we have seen, by postulating an agent, or set of agents, with just such powers and in just such relations that they shall be exactly adapted to produce the facts. From this point of view, the whole of scientific theory appears as a gigantic teleological

construction. Every scientific hypothesis is so interlocked with every other, that the assumed agents are exactly fitted to produce what they do, and nothing else. And this is no meaningless claim, for the actual harmony of the world is won from the conflict of the most gigantic forces; but these are so nicely adapted to one another that they maintain the universal order. The four chemical elements which enter into organic life are the chief disturbers of the universe. Oxygen is the parent of fire; hydrogen is the most inflammable substance known; carbon is doomed to burning; and nitrogen is the base of gunpowder and nitro-glycerine. Yet these are so nicely balanced that the organic world results, and no hint is given of the tremendous forces which build up the organism. Were their combining power varied a little, either life would be impossible, from the too great stability of their compounds, or the earth would be rocked and shattered by their incessant and tremendous explosions. A glance into the realm of scientific theory reveals to us a multitude of agents whose unrestrained action would plunge the system into chaos; but which are so adjusted to one another that order and harmony results. To this it will be objected, that if a thing does any work, it must, of course, be fitted to do it. If, then, the atoms and the ether are the substantial realities of the physical system, and produce the phenomenal order, they must, by hypothesis, be able to produce it; but that does not prove that they were intended to produce it. This may be true, but it misses the point. The present question is, not how this adaptation has been produced; we insist only upon its existence as

a necessity of scientific construction. In short, all must allow that the universe is constructed, from beginning to end, on just those rational principles, and with just those adaptations and harmonies which mind would have employed if it had intended to realize the present order with the present agents. One may claim that the end is not worth realizing, or that it might have been realized in some better way; but no one can deny that if the present order were to be realized by similar agents, only the profoundest adaptation of means to ends would make such realization possible. Universal adaptation of means to ends, therefore, if not by a rational being, at least such as a rational being would make if he proposed to realize the present order with similar agents, is an absolute postulate of science. For scientific theory is simply teleology read backward. Teleology conceives the end and adapts the agents; science starts from the end and reasons back to the adapted agents; but the adaptation in the agents is identical in each case.

But we must advance still further. The universe works together with nicest balance and adaptation to produce any effect; but it may be claimed that science need only regard the effect as a rational result of its antecedents, and never as an end for whose realization things are working. In the daily detail of science, it is quite possible to leave the purpose of things out of sight; but science, as a whole, must assume the universality of the principle of final cause. The reality of final cause in nature is a necessity of theoretical science, not merely as a conclusion from the facts, but as an *a priori* postulate. Final causality is the causality of

will. It is self-conscious power moving toward a preconceived goal. Now we must conceive the basal power of the universe as either intelligent or non-intelligent. In the former case, final causality is the basal causality of nature, and the principle of final cause is the determining principle of the universe. In the latter case we fall back into the skeptical difficulties mentioned in the beginning of the chapter. Apart, then, from all scrutable purpose in nature, science is theoretically impossible without assuming that all action in the universe is for an end. This is what President Porter means by declaring the reality of final cause to be an intuition; a doctrine which has been largely misunderstood, and still more extensively not understood at all. American and English thought has been so accustomed to the argument from design, that when one declares the principle of final cause to be an *a priori* necessity of science, he is almost sure to be misunderstood. And this assumption, that natural effects are also ends, constantly manifests itself in our theories and criticisms. If a theory, even in the inorganic sciences, is found to be clumsy and stupid, it is rejected without hesitation. But why should not nature be clumsy? The pessimists assure us that the world works so ill, that it must be viewed as a failure; why should it not play the blockhead in physics, as well as in sociology? One great argument against the separate creation of species is, that it seems an awkward way of realizing the end. And one great argument for evolution is, that it will enable us to think more highly of the creative wisdom. But none of these criticisms are

of any value, unless we assume (1) that the results reached are more than effects, but are ends also; and (2) that the manner in which these ends are reached, is the measure of some creative wisdom. For atheism, the actual is all. There is nothing high nor low, nothing wise nor unwise, nothing benevolent nor malignant, nothing good nor bad, in nature. All these words imply some standard of reference, and that must always be teleological. We cannot criticise at all without assuming some end for whose realization things exist; and we cannot allow any inherent clumsiness and stupidity in nature without setting all scientific theory adrift. Every scientist must implicitly assume that the wisdom, insight, and rationality of the cosmos surpass ours, and that we can hope only to learn, never to teach. When we come to the organic sciences, the notion of an end which conditions the means, becomes the guiding principle, both of investigation and of criticism. Every organ is looked upon as existing to perform certain functions, and all description and all criticism depends upon reference to that function as the final cause of the organ. An eye that did not see, would be called imperfect. But why imperfect? The word has no meaning, except as we assume that the end of eyes is vision. The same is true of any other organ, or of the entire organism; it can be neither described nor criticised without assuming an end for which it exists. Even those who are most careful to refrain from attributing any purpose to nature, hasten, after recording their protest, to make the freest use of teleological notions and language. To deny that these notions have

objective validity, is to declare the biological sciences impossible, except as a series of observations. For we know almost nothing of the causes which produce the organism, and it is not probable that we ever shall know much. We know what purpose the eye, the ear, the blood, the reproductive organs, etc., serve; but we have not the slightest insight into the mode of their production. We know, too, that this purpose contains the ground why the organs should be as they are; so that, even while we deny a mind which conceived these ends, we have still to assume them in order to make investigation possible. And every-where this necessity appears. We speak of the members of a species as perfect or imperfect specimens. But this language, again, acquires meaning only from the assumption that there are certain forms and functions which every member of the species ought to reach. Now however these ends may have been brought about, it is impossible to deny their existence as facts which condition both scientific investigation and the organs which realize the ends. Had there been no such end as vision, the eye would never have been as it is. Hearing, as an end, has conditioned the structure of the ear. Motion and sensation, as ends, have conditioned the structure and disposition of the muscular and nervous systems. No matter how this conditioning has taken place, the fact is unquestionable, and the organs can be understood only in the light of their functions. Some claim that there was no foresight of ends; but, pressed by the difficulties of any mechanical explanation, they take refuge in the notion of an unconscious intelligence

which does every thing with infinite wisdom, but without consciousness. Others hold that an end, as such, has only an ideal existence, and, therefore, can condition the means only as it exists in a prearranging mind. They also insist that the phrase, unconscious intelligence, is a sheer absurdity, devised for the sole purpose of recognizing ends in nature without admitting the correlated thought of an adapting mind. We believe these points well taken; but, instead of deciding the question, we are content with reaffirming our position, that science must assume that nature is founded in purpose. Many points we reserve for future discussion. In particular, we expect to show in the next chapter the untenability of the claim that mechanical forces might in indefinite time realize universal adaptation without any basal intelligence.

In ethics and social science the notion of an end is equally controlling. No theory of duty or of rights is possible without assuming some end for which man exists. No theory of government can be stated which is not teleological. In proportion as we think highly of man's destiny will his duties appear great, and his rights sacred. In the previous chapter we have sufficiently illustrated the teleological nature of all world-theories. We have seen that pessimism and materialistic evolution are as fully, though not as frankly, teleological as the most optimistic theism, the only difference being that theistic teleology gives some dignity and value to life, while atheistic teleology is revolting in the ends it assumes, and stupid in the method of their realization. We come, then, to this point: Materialism,

materialistic and necessary evolution, and all empirical theories of mind, are fatal to science; and as atheism necessarily leads to these doctrines, atheism is fatal to science. The materialist and atheist, therefore, may be valuable as day-laborers in science, but, left to themselves, the outcome must be a scientific Babel. Further, we must assume, (1) the universal rationality of nature; (2) the fairness and condescension of nature; (3) a universal rational adaptation of every thing to every other in nature; (4) the reality of ends in nature, which have conditioned the means of their realization; and, (5) that nature, as a whole, is founded in purpose. Without these assumptions, science falls a prey to skepticism. We conclude, therefore, (1) from the skeptical outcome of atheism and pantheistic substantialism; and, (2) from the positive necessities of scientific theory, that God is as much the postulate and support of science as he is of religion.

## CHAPTER IV.

### MECHANISM AND TELEOLOGY.

ALL theoretical science is built upon some form of the atomic theory. Those who disclaim belief in the reality of atoms, are still forced to assume some molecular unit which is the substantial reality of material things, and whose properties condition all material manifestation. Accordingly those who adopt the notion that atoms are vortical rings in a frictionless fluid, can do nothing with said fluid until they get their vortical rings; that is, until they get their atomic units. We may, then, abandon the Democritic notion of the atoms as little lumps secure forever in solid singleness against destruction; but we cannot dispense with the notion of discrete material units of some kind. It may be that these units are but discrete activities of some all-embracing power; but whatever they may be, they are the basis of all current scientific theory. We shall, then, until further notice, argue upon the assumed truth of the atomic and molecular doctrines of matter. All mechanical theories of nature assume that the visible universe can be explained by the various grouping of these atomic units, and that these groupings take place in accordance with the simple laws of motion and the principles of mechanics. Hence the name. In such theories every problem is one of either molar or mo-

lecular mechanics. We propose to examine the relation of this theory to the doctrine of purpose in nature; as it is often held that the two are incompatible. We have already shown, from the side of theory, that science must be teleological if it is to avoid skepticism. We now aim to show, from the side of the facts, that mechanism can never affect teleology.

The belief that the order of nature cannot be explained without assuming an intelligent creator, has never held undisturbed possession of the human mind. Very early the attempt was made to explain the world by referring it to physical causes; and every generation since has seen the attempt renewed. But the belief in purpose or nature, while always more or less militant, seems of late to have fallen into unusual discredit. Strangely enough, too, this distrust always springs up among just those men who are best acquainted with the facts commonly urged to prove the reality of design in nature. A good part of the blame in this connection is popularly attributed to Mr. Darwin. It is a wide-spread conviction that Darwinism is a Medusa head upon which no teleologist can look and live; for in the doctrine of natural selection we have at last a means of accounting for the nicest adaptations without referring to any adapting intelligence. In truth, however, the controversy lies back of Darwinism. The facts gathered under this theory are quite susceptible of a teleological interpretation. The objections based upon this theory are but special phases of a long-standing dispute between science, as such, and the

belief in design, as such. In studying the history of thought, we are met by the strange fact that when men have discovered how a natural effect is produced, they begin to think that there is no purpose in its production. To learn how a thing is done, weakens faith in any design in its doing. Thus the nebular theory, inadequate as it is to the facts, has greatly lessened faith in any design displayed in the heavens. The solar system, it is said, is a necessary outcome of gravitation and inertia, and can dispense with any guiding intelligence. And from the beginning, the study of efficient causes has tended to discredit the belief in design; and conversely the believers in design have tended to ignore the reality and necessity of efficient causes in order to its realization. Both Plato and Aristotle complain of Anaxagoras, that, having assumed mind as the cause of order, he still continues to explain natural phenomena by physical agents. Aristophanes attacked Socrates for seeking a physical explanation of the clouds; for this, he held, was downright atheism. Both theists and atheists have repeated this error ever since.

A partial reason of the hostility of physics to teleology is found in a coarse conception of the latter doctrine. To our human purposes, matter exists as something given, and our aims are impressed upon it from without. Hence in all our machines there are two elements: (1) the material and its laws, and (2) the laws of the combination which have been impressed upon it; or, to use the Aristotelian phrase, there are matter and form. The matter does not explain the form, and the form is not inherent in the matter. Now when we speak

of the universe as designed, the undeveloped mind is prone to look for these two factors there also, and in the same external relation matter is viewed as external to form, and form is imposed on matter. Accordingly we think of the matter of the universe as being just as external to the purpose of the system as it is to our human aims. In this way teleology comes to be regarded as implying constant interference, and a mechanical making of things. Thus the notion arises that whatever can be explained by physical laws and agents is rescued from the control of mind. We find this thought in the oft-made criticism, that the design-argument at best would only prove an arranger and not a creator of the universe. We find it, too, in the eager search for breaks in the physical order which is so often made by theistic writers. But such a conception belongs to the infancy of thought; and teleology is not bound to accept such a view. Since the time of Leibnitz, and even of Aristotle, there ought to be no difficulty in the conception of an immanent purpose of which nature is but the substantial expression. The teleologist may hold, then, to the absolute continuity of natural laws, and at the same time hold that purpose was the *prius* and condition of the system's existence. He may hold that purpose is realized, not by raids into the realm of natural law, but through natural law; and that purpose was legislated into the inmost law and essence of things, so that things and their laws are what they are because of that purpose; and so that in their necessary unfolding they shall realize that purpose. This was the conception held by Leibnitz, and

this was the way in which he reconciled mechanism and teleology. The universality and continuity of law were never more stoutly maintained than by him; but he held, also, that the system sprang from a purpose which conditioned it throughout. And all study is valuable which leads us to abandon the vulgar notion of design as interfering with the nature of things instead of working through the nature of things. In proportion, too, as the order of nature is seen to flow from the nature of things, the design-argument points not merely to arrangement, but to creation.

The chief cause, however, of the hostility of physical science to teleology lies in the fact, that the physicist, as such, and the teleologist, as such, occupy entirely different stand-points. The former regards nature as driven from behind; the latter regards it as led from before. The former views every event as the necessary result of its antecedents; the latter views it as the realization of a plan. The physicist asks of any natural product, how it was brought about; and sets himself to discover the agents which have produced it. The teleologist asks, what it means now that it is here, and what place it takes in the universal plan. He says: It is here to fulfill a purpose; but the physicist says: It is here because there was a series of antecedents which necessarily produced it. Here, again, we see traces of the error noticed in the last paragraph. The physicist studies how things are produced; and from failure to grasp the thought of an immanent purpose, once more he begins to doubt whether there is any purpose in the product. A system of necessary law, he says, can

know nothing of purpose, because purpose implies choice, and necessity is fated. Moreover, such a system can dispense with purpose; for the system being given, it must produce its implied effect. He holds, then, not that the system exists to produce its effects; but that the system exists; and its implied effects result. Here, then, is an antinomy between efficient and final cause; and the claim is, that necessary physical action can dispense with design; if, indeed, the notion of one is not logically inconsistent with that of the other. This claim we have to examine.

Before proceeding to criticism, we point out that the perception of design in any thing is not a matter of science, but solely of common sense. Any person, of average reflective power, is as able to judge whether a work is designed as a scientist who can talk most learnedly about it. For all that physical study can do in such a case is, to show how the effect has been reached. Whether there was purpose in the action which has resulted in the effect can be known only by an inspection of the effect itself. We further point out that design is not properly proved by argument, but by inspection. It is an intuition, rather than a conclusion. We prove that a straight line is the shortest distance between two points, not by argument, but by constructing the lines and looking at them. So, also, we convince ourselves that a machine was designed by looking at it. It is necessary to make this remark, as critics often insist that the argument begs the question because it cannot demonstrate design. But the teleologist who

understands himself does not pretend to demonstrate design. His aim is to solve a problem rather than to demonstrate a proposition. Accordingly, he calls attention to the complex harmonies and adaptations of t' ings, which are just like what a designing mind would produce. These constitute the problem; and his claim is, that a prearranging mind is the only solution which is at once satisfactory to the mind and adequate to the facts. This is the true meaning of the design-argument. As such it is not a begging of the question, but is an argument in harmony with universal common sense. Verbal quibbling will never suffice to overthrow it, however clearly it may show the lack of stronger objections.

As an introductory criticism, we point out that in our experience efficient and final causes are not only not in opposition, but each implies the other. Our purposes always demand some agents for their realization; and our adaptation always consists in so arranging natural objects, that while following their own laws, they also realize our ends. The action of a locomotive is a purely mechanical affair. It flows directly from the antecedents; and given the antecedents, it must act as it does. Still, we should not feel convinced if an enemy of design should conclude from this fact that there is no purpose in the construction of a locomotive. The tones of a piano result from the properties of the wires and the sounding-board; and we might conceive that some one should set out to prove that there is no design in a piano's construction, because from beginning to end the resulting notes are the products of the com-

ponent parts. We should not be greatly impressed, however, with the conclusiveness of the logic. When, therefore, a physiologist tells us that all the properties of an organism flow necessarily from the nature of its constituent parts, we can very readily believe him. But when he adds, and therefore the organism is explained without assuming any purpose in its construction, we ask for further proof. This is a very popular argument with the physiologists at present. Physiological notions have been largely remodeled within the last twenty-five years. We hear much of colloids and crystalloids, of immediate and proximate principles, of physiological units, etc. These notions have been thrust so persistently in the faces of the teleologists, that it seems to have escaped notice all round, that they really increase, to an almost inconceivable degree, the structural wonder of the organism. The claim, then, may be just, that these principles explain the organism; but we see no cogency in the conclusion that, therefore, the organism is in no way a product of design. In our experience, purpose is realized only through means; and hence it is a possible thought that natural agents exist to realize ends, and that they are what they are, because of the ends for which they were created. In such a case the laws of nature, in their necessary working, would result in the end proposed; and a study of natural agents would show us a series of effects unfolding with necessity, and at the same time realizing a preconceived purpose. This, as we have said, was Leibnitz's conception. We conclude from these considerations that physical causes, working by necessity, do not necessarily dis-

pense with the belief that their products were designed. And it is greatly to be desired that objectors would present some more cogent argument against purpose in nature, than a mere showing how it has been realized. In our experience, all order and harmony which we can trace to a beginning, existed first in thought; we know of no other explanation. It is, then, no far-fetched or violent supposition that the natural order, also, existed first in thought.

These suggestions are weighty, and quite in harmony with common sense, but serious objections are possible. If it could be shown that things had a beginning, or are dependent on some power not themselves, or that they once existed in a chaotic state without definite powers and relations, the argument for design in nature would be practically a demonstration. It is infinitely improbable that any agent should produce and maintain the order of the universe without knowing what he is doing. It is equally improbable that a series of blind, mechanical agents, which were once without definite law and order, should ever rise above chaos. Every rational objector to design in nature allows this with the utmost cheerfulness, but he denies the beginning and the chaos. The phenomenal order has, indeed, had a beginning, and will have an end. But this order is only the manifestation of a world of substantial realities which have their laws and properties in themselves, and the objector claims that there is no proof that these basal realities ever began. In short, he regards the physical system as self-sufficient and eternal. But it may be worth while to let him explain his views at greater length and

in the first person. He says: The problem for all thinkers is to find a sufficient ground for phenomena; and this cannot be done by any *a priori* speculation, but only by studying the facts. Now, I find the order and arrangement of things fully explained by the nature and disposition of physical causes, and these are in no case free, but work under the scheme of necessity. I find to-day the necessary result of yesterday. That all admit. But the same principle makes it necessary to assume that yesterday flowed with equal necessity from the day before. If you ask how I account for the beginning, I reply, I recognize no beginning. The present forms of things have not, indeed, always existed, but I see no reason for denying that the present ultimate agents of nature have always existed, and that, too, under just the same laws as now. We all have to admit that something has always existed. This external existence you find in a mind back of nature. I find it in nature, or in that complex of agents which we call nature. To appeal to the fact of an original chaos, is simply to mistake dispersion for disorder. I find the reign of law just as absolute in that nebulous time as it is to-day. If you ask how this manifold of agents should work together as they do, I say, I don't know. But I must assume them in some relation, and why not the present as well as any other? The objection that it is infinitely improbable that such a mass of elements should hit upon just this order of intelligence and escape all others, makes three unwarrantable assumptions. The first is, that a calculus of probabilities can be applied to first facts, which is a decidedly false assumption. Such cal-

culus is meaningless, except as you have already a body of known and calculable agencies; and then your calculus has no effect upon the fact itself, but only upon your expectation before the fact declares itself. If, for instance, I throw a cube marked as in dice-playing, there are five chances to one that an ace will not turn up. This consideration would make it quite hazardous to bet on the ace, and I should govern my action accordingly. But when the cube has been thrown and the ace has turned up, I must accept the fact, and can never call in my previous calculus of probabilities to show that the ace has not turned up. I had previously little ground for expecting the ace to turn up; but I had just as much reason for expecting the ace as any one of the other sides. And, now that the ace has turned, I accept the fact, and my previous calculus of probabilities has no further application. Such calculus, therefore, does not apply to first facts, because it is meaningless without first assuming a known set of agents and conditions. And, furthermore, it cannot be played off against any fact after the fact is once there. Moreover, if we should apply this calculus to first facts, would a harmony among the elements be any more improbable than the existence of an eternal and omniscient mind?

The second unwarrantable assumption is, that the elements were once in such indeterminate relations that an infinity of directions were possible; and hence the question arises, how they could have escaped all the inharmonious and chaotic combinations, and hit upon the present orderly and harmonious one. This assumption

is an unpardonable sin against the first principles of mechanical science. It is based upon the false notion that all being must have had a beginning; whereas every system has to admit an eternal being of some kind as its foundation, which being, again, is, and is as it is, simply because it is. Explanation cannot go on forever; but must come down to an ultimate fact of which no further account can be given than that it is, and has such or such attributes or ways of working. Now, continues our anti-teleologist, there is no place for indeterminateness in a mechanical system such as I believe in. The present is the necessary result of the past and the only possible one. Make a cross section of the stream of things at any point whatever, within the nebula or beyond it, and you find the complete provision for the present order of things, with the exclusion of every other. We can, indeed, think of other orders; but no other order was ever possible in fact. In reality, the actual is the only possible. When, therefore, the teleologist calls upon the scientist to explain how the original indefiniteness escaped all the chaotic arrangements possible, and hit upon the present, which seems so replete with intelligence, he mistakes the most fundamental mark of mechanical science; and when the scientist admits such an original indeterminateness, and attempts to show how it has gradually acquired definiteness, he sins equally against the first principles of the mechanical theory. This theory comes down to the notion of definite elements, in definite relations, and claims that they explain all, and that it is unnecessary to go behind them. Its first fact is a world-order

among the elements. This fact is an eternal miracle; but then it exists, and all else exists in consequence. The elements must be in some relation, and why not in harmonious relation? What better right to existence has chaos than order? What real ground is there for assuming that disorder must have been first?

We are anxious to let the anti-teleologist have fair play; and so we listen to his criticism of the third assumption. He says: It is tacitly assumed by the teleologist that the present order is not only a miracle of design but of perfection, too, and that any other grouping of the atoms would have resulted in comparative disorder. It is, therefore, a ground for great wonder, that of all possible combinations the most perfect should have been hit upon, if there were no guiding mind. The anti-teleologist adds, that, admitting the untenable thought of various possible combinations, the teleologist's view, that the present is the best possible order, is sheer assumption. So far as our experience goes, there is much to criticise in the order of things. There is much that seems to us useless; there is very much that seems positively mischievous; and there is very little that appears to have such transcendent worth that we cannot imagine a better, or that it should seem absurd to ask what it is for. Nature is, to a certain extent, usable, and much has been made of this fact in the design-argument. We do employ natural agents to a large extent as our servants; but the argument forgets that nature is often obstinate and intractable. Certainly nature is not so eminently usable that we must assume a purpose to account for it. Moreover, in

great departments of natural activity we see no purpose at all; at least we see none which it seems worth while to realize. What great need was there of filling the world with noxious nuisances, such as the insect world is for the most part? What crying necessity for producing the parasitic orders? Would the universe have been less perfect if fangs and claws and venom had been left out? Nay, even this tedious sameness, which is called the uniformity of nature, would not that be improved by an occasional change? Why not something new and interesting, at least once in awhile? Moreover, is it at all sure that the good results we see could not have been reached in a far better way? The world, with all its imperfections, does, indeed, contrive to keep a-going, but that is all. The notion that it is the best possible is in sharp contradiction to our experience, and is in no way susceptible of proof.

The denier of design in nature has expounded his theory at great length and with much force. It is certain that the doctrine of probabilities is often misused in theistic writings. It is assumed that there was a period when matter was lawless and chaotic, and the easy conclusion is drawn, that order could never have arisen from such a state. But the atheist need not admit such a state, without more proof than is commonly given. The denier of design in his last objection has assumed that the argument for ends in nature rests upon observation only, whereas, in the previous chapter, we have seen that they are postulates of inductive science. He has also touched upon the problem of evil, before which all human wisdom is dumb.

It will not escape notice that his criticisms of the actual order are both teleological and anthropomorphic. He judges it throughout by the standard of human interests; and where he can see no end, he assumes that there is none. But omitting further reference to these points, his position is this: Nature does, indeed, show harmony and adaptation; but they are accounted for by natural agents; and there is no need to go behind these agents for further explanation. But in judging this view we must guard against an unconscious self-imposition of which we are often guilty at this point. Theism is often spoken of as a metaphysical and religious theory, while the atomic doctrine is opposed to it as a scientific fact. In truth, both are theories, and both are equally metaphysical and speculative. That the atoms exist, is as much a matter of inference as that God exists. That they are adequate to the facts, is known by assuming them so. The physical agents explain phenomena because they are expressly constructed for that purpose by the scientific theorist. The theist reasons to God, to explain the unity and harmony of the universe. The atheist, for the same purpose, reasons to atoms, which, no one knows how or why, do actually work together without intelligence and without knowledge of one another's existence, yet in such a way as not only to mimic intelligence but also to produce it. But after the atheist has thus reasoned to his atoms, and has endowed them with all they need in order to get along with the facts, he regards them as self-existent and eternal. The argument is, that if such wonderful atoms did exist, they

would explain the universe; and the facts prove that such atoms do exist: hence they explain the universe. It is allowed that if such atoms were created, they would be a miracle of wisdom; but there are no facts which point to their origination, and why may they not be viewed as the uncreated facts of the universe? The rational atheist does not appeal to chance, for a mechanical system knows nothing but necessity. He does not say that the atoms happened to be, but that they are. He does not say that they chanced upon their harmonious relations and interactions, but that they actually exist and work in harmony. Why things do not work otherwise, he does not pretend to say. It is their nature to work as they do, and that is the last word upon the subject. Their harmonious interaction and adjustment do not prove the dependence of the system, because the elements were postulated in such rational and purpose-like adjustment; and the atheist claims that there are no other facts which prove their dependence. The theist makes God his ultimate fact; the rational atheist finds that fact in the order and nature of things. All other forms of atheism he regards as vulgar and unphilosophic, and an easy prey to the theist.

In opposition to this subtlest form of atheism we hold: (1) This position is essentially skeptical and tends to the overthrow of all science. (2) The attempt to explain the intelligible order of the world by referring to an unintelligent nature of things, leads to the necessity of denying mind in man as well as in nature. (3) Both physical and metaphysical arguments make it

impossible to regard the visible universe as self-dependent. But before going further we shall find our advantage in a critical exposition of the system before us, and in a deduction of its results.

The first thing which strikes the critic is, that this system properly explains nothing, but tacitly assumes every thing. It explains the visible order by assuming it in the nature of things. It explains the forms of matter by assuming that matter is loaded, so as to fall as it does. But this loaded matter is eternal, and hence we need not go behind it. It further necessitates very great changes in the current notions of matter, and puts to death all those vulgar forms of atheism which imagine that time alone can ever do the work of intelligence. For wherever we make our cross section of the past, we find the present order given, and every other order excluded. In determining the nature of the cause or causes of phenomena, we are forced to take account of the phenomena, and make provision for them in the nature and arrangement of those causes. The crude materialism of the past, which aimed to get the higher out of the lower, the living from the dead, sensibility from the insensible, and thought from the unthinking, must be abandoned. The notion of the ancient materialists, that matter, conceived merely as a collection of little hard lumps or as bits of solid extension, can explain phenomena, is spoken of by Professor Tyndall as "absurd, monstrous, and fit only for the intellectual gibbet" ("Fragments of Science," p. 160.) In his answer to Mr. Martineau (printed also as a preface to the second edition of the "Fragments of Science") he com-

plains that people persist in holding only those notions of matter which suffice for works on mechanics. He insists that matter can be defined only by observing what it can do. Of matter and force he says: "If life and thought be the very flower of both, any definition which omits life and thought must be inadequate, if not untrue," (p. 122.) Again, in the preface referred to, after having recounted many marvels of the universe, he says: "Matter I define as the mysterious something by which all this has been accomplished."* Thus Professor Tyndall proves the cause of things to be material by the easy process of naming it matter. Again, Sir William Thomson says: "The assumption of atoms can explain no property of body which has not previously been attributed to the atoms themselves."

But there is no need to pile up authority, for a little reflection will convince us that it must be so. The problem is to find a ground for phenomena, and the cause must fit the effects. The scientist feels justified in assuming a manifold of elements at the base of phenomena; and the nature of these elements or atoms must be determined from observation of what they do. First, there are phenomena of gravitation. We attribute, therefore, to the atoms a general power of attraction. There are next phenomena of cohesion, which obey other laws than those of gravitation. Hence,

* It may be pointed out that this notion of a new definition of matter, so as to make it something mystic, plastic, wonderful, which is becoming so popular with atheistic speculators, is nothing but the hylozoism of the early Greeks. It has made its appearance often in speculation, especially in Hobbes and the French materialists of the last century.

we give the atoms a new power of cohering under certain circumstances. Among certain members of the atomic group, and under certain circumstances, a new class of phenomena—the chemical—appears. We enlarge our notion of the atom, therefore, to meet the emergency, and attribute to the atoms a power of chemical action under the fitting conditions. Coming higher up, we find a new set of phenomena—the vital; and, as we have determined to know nothing but the atoms, we must once more enlarge the notion of the atoms and make provision for vital action. Besides, as the results of this vital action are of the most diverse kind, presenting great dividing lines of classes, species, etc., we must arrange for this too in the nature of the atoms. Accordingly, the atoms must be of such a character that in one plant or animal they will regard the peculiar type to which it belongs. If we should allow the atoms to be indifferent to organic forms, the existence and diversity of forms would find no explanation in the atoms. Hence, we escape admitting species outside of the atoms by the easy device of putting a provision for them in the atoms themselves. Again, there are harmony and adaptation, and seeming purpose, in nature. These too must be explained; and we can do it only by once more reconstructing the atoms and making them of such a nature that they shall work together as if for the realization of a common purpose. Finally, there are phenomena of sensibility and thought. There is no possibility of getting these out of our atoms as having only mechanical and chemical properties; but there is no difficulty in reopening the atomic no-

tion, and stuffing in the new content. Accordingly, we cut the knot by conceiving certain of the atoms to have the power of thinking and feeling when they come into certain combinations. Moreover, as some phenomena of consciousness are of such a nature as to make it impossible to view them as a product of two or more agents, we must make some one of these atoms the seat of the mental phenomena at any given moment; and, as the atoms are in constant flux, we must suppose the receding atoms to transfer the whole of consciousness to those which come after, and that, too, so deftly as to produce not the slightest break in the continuity of the mental life. It is rather difficult to see how all this can be done; indeed, some of the demands made upon the atoms seem to border on contradictions; but we let that pass.

The reader will see the method of the anti-teleologist. We have left the old materialism far behind. We have got life and mind out of matter by including them in its definition. We have proved our atoms quite capable of conducting the universe; first, by assuming that there is nothing but atoms; and, second, by distributing with free hand to the atoms all they may need to enable them to get along with the facts. Now see the point to which we have come. All scientific hypotheses are constructed for the express purpose of explaining the facts. The causes, or agents, assumed, are expressly adapted to produce the phenomena in question. To do this we have endowed them with the most complex powers, and put them in the most complex relations. We have provided for the order and diversity of the universe by

assuming it in the atoms. We have explained away the need of an intelligent creator by explaining omniscience into things. We have dispensed with a God back of the elements by making the atoms themselves a host of little gods. That this expression is none too strong, appears if we think of the demands which the simple law of gravitation makes on the atoms. According to this law, every atom acts upon every other, and acts upon each one as if all the rest were away. At every instant it is adjusting itself to the activities of every other in the universe, and regulates its own accordingly. But this demands the ceaseless yet instantaneous solution of the practically infinite number of equations which, at each moment, express the relation of one atom to all the rest. If atoms exist at all, there are decillions of decillions of them; and hence each atom must solve instantaneously decillions of decillions of equations, and this forever. But while all human intelligence is palsied by the conception, the atom is supposed to be abundantly able to do it forever, and without any consciousness of itself, or of what it is doing, or of the existence of the others to which it is forever responding. Or, we can put it in another way. Any and every change of distance between an atom and any other, demands a corresponding change of activity. When we come to the molecules, a change of a millionth of an inch results in the change from attraction to repulsion. But this change of distance is incessant, and the number of changes in every instant are practically infinite. The atom, then, must have absolute sensibility to these changes of distance, yet

without consciousness or intelligence of any sort. That an army of men without reason or sensation should, without external guidance, but solely from the nature of things, come together and produce the most complex and purpose-like products, would have only an infinitesimal part of the wonder which the action of the atoms has. We need not complicate the matter by referring to the various other laws of force which the atom is also obeying. The simple law of gravitation almost forces us to take refuge from the dizzy vastness of the problem in the theory of an omnipotent and omniscient administrator of nature. Indeed, the difficulties of the nature-of-things doctrine are so great when applied to the atomic theory, that there is always a strong tendency among those who hold it to take refuge in some form of pantheism. For where there is a plurality of things, there must be a plurality of natures; and where there is a plurality of self-existent things, there must be a plurality of self-existent natures. Hence the atheistic explanation is not properly based on the nature of things, but on the natures of things. How these individual self-existent natures are brought into relations of interaction and harmonious co-working, it does not explain; and yet this is the knot of the problem. Now when we remember (1) that the atom is not a matter of knowledge but of inference only, and (2) that the problem of thought is to find the simplest and most rational explanation of the facts, it can hardly be claimed that the doctrine of a one God who creates and co-ordinates all things, is harder to comprehend, or less satisfactory to reason, than the notion we have been considering. In

the former view, all is luminous and intelligible; in the latter, all is opaque and impenetrable. The nature-of-things doctrine explains phenomena by assuming a set of agents with just such qualities, and in just such relations, that they cannot but produce the phenomena in question. Of course, this is an explanation. When the juggler's hat is first stuffed with the appropriate matter, there is no difficulty in explaining the astonishing fullness of material which is drawn from it. When the dice are known to be loaded, it is easy to understand their peculiar turns.

Before passing on, however, we may note the position which Darwinism and evolution must take in such a scheme. We have debated the question on the ground of the atomic theory, as that is the conception most favored by science at present. The conclusion, however, is equally good for any system whatever which assumes that the present is the necessary product of the past. Every such system is forced by its principles to involve the phenomena before it can evolve them. Its data invariably contain implicitly what afterward becomes explicit. The higher is never deduced from the lower: but both lower and higher are but the several phases of the basal fact thus assumed. The blade does not explain the ear; but both blade and ear are but successive phases of the cycle involved in the original nature and disposition of the efficient causes. The nebula does not explain the solar system; the dead does not explain the living; the non-intelligent does not explain the intelligent; the brute does not explain the man; but the nebula and the system, the living and the dead, the intelli-

gent and the non-intelligent, the brute and the man, all are but the various phases of the one all-embracing cycle which is given in the primal nature and disposition of the efficient causes of the universe. We must, therefore, lay aside the vulgar conception of Darwinism and evolution, which gets the living from that which is nothing but the dead, and man from that which is nothing but the brute. Every thing which is to mount above itself must have in itself the tendency to, and the provision for, that higher plane. When, then, nature manifested nothing but mechanical or chemical phenomena, it was not merely mechanical and chemical, but more, and was already on the way to the realization of that more. When nature could show nothing higher than the brute, nature was not merely brute, but more, and the advent of that more into explicit reality was approaching. Without this assumption no scheme of development is for a moment tenable. Every new increment would be a creation, and something would arise from nothing. But the great god Brahm is no less Brahm before he has taken on form and finiteness than he is afterward. He is forever equal to himself; and when he returns to the "void and harmless infinite" we may not call it a descent. The explicit power and wisdom which once went forth from him have been re-enfolded; that is all. Both Darwinism and evolution must come within the circle of the universal mechanism, and abandon those modes of expression which savor so strongly of chance, as contradicting the first principles of physical science. Moreover, both doctrines must descend from the rank of

explanations into that of mere descriptions of sequence. They explain nothing; they assume every thing, and merely describe to us the successive phases of the first assumption. The great cycle rolls on forever, manifesting all the varied phenomena of the living and the lifeless, of life and death. What its complete round may disclose there is no telling. What other possibilities it may reveal under new conditions, lies beyond our imagination. We can do nothing but watch its successive phases and record them. This is the only position which the anti-teleologist can take which shall be in harmony both with the phenomena and with the necessary principles of mechanical science.

This point is of the utmost importance. The doctrine of natural selection is constantly appealed to as showing how organic adaptations have been produced without any presiding intelligence, but the success is only apparent. This appeal forgets that in a mechanical system, or in any system of necessity, there is something back of life which determines it, and all its unfoldings, with absolute necessity and certainty. The biological speculator, finding life apparently flexible and spontaneous, forgets the all-embracing necessity of which it is but a phase, and makes a false distinction between the determinateness of the physical world and the indeterminateness of living things. In this way, he fancies it possible to produce adaptations of living things to their surroundings which were not originally provided for in the system. But this is illusion. No mechanical system, and no system of necessity, can introduce any new elements into itself. In such a system, every movement of every

living thing, every variation, every survival and non-survival, all life and all its determining circumstances, have always been absolutely determined. Physics lies back of biology, and reminds the speculator that every adaptation and harmony now in the system have always been there. The explanation of organic adaptations, therefore, by natural selection, or by the conditions of existence, or by the survival of the fittest, reduces at last to assuming a set of agents of such a kind, and in such relations, that every thing must have happened just as it has. With this assumption we see very clearly how things have been brought about; we have done more, we have explained the organic world without the unscientific notion of a planning and guiding intelligence. When, then, the Spencerians offer to show how an "indefinite, incoherent homogeneity" ought to develop into a "definite, coherent heterogeneity," we make them a present of the demonstration; first, because the strictly indefinite can do nothing and is nothing, and more particularly because such a demonstration can have no application to the actual universe. For as any given phase of the nebula, which is what they seem to mean by the homogeneous, was necessarily determined by its antecedent phase, there is nowhere any room for interpolating hypotheses about origins. An undetermined nebula was never given; and it is quite idle, therefore, to speculate on what such a nebula would do. A self-centered and abiding world-order moves on through space and time, manifesting its various phases, and bringing to life and death. The conclusion would not be modified at all if we allow the notion that the atoms

themselves are products. Wherever there is producing there is something which produces; and if the atoms have been developed, we can conceive the process as resulting only from the action of some definite agent or agents, with definite nature, laws, and relations. Many speculators, in their romantic passion for development, write as if every thing might be developed from nothing. Such, then, is the outcome of every mechanical system. It does not explain order, but assumes it. Yet the intelligible order is the thing to be explained.

For the thinker, this point has already been over illustrated. The very notion of mechanism denies all chance and indefiniteness. An apparent progress from the indefinite to the definite in such a system is a progress from definiteness which only reason can perceive, to definiteness which the senses can perceive. In like manner, an apparent progress from the like to the unlike, is only in appearance. It is a progress from differences perceptible only to reason, to differences perceptible by the senses. This conclusion is but an analysis of the notion of mechanism; and yet we feel justified in offering another illustration. The nebular theory is often mentioned as an instance where blind matter, under the simple law of gravitation, has built itself into a stable solar system, and has thus mimicked the work of intelligence. It is often both claimed and allowed that the doctrine of ends, in the solar system, has received its deathblow from the nebular theory; and the notion obtains, that, given diffused nebulous matter in any form whatever, it must build itself up into the present system

of sun and planets. This is a double mistake. It is not true that any nebula of proper mass would form our system; and the notion that any tenable nebular theory disproves design, is due to the coarse conception of design to which we referred in the beginning. If we assume that the solar system had a nebular origin, we have to assume, not a nebulous mass in general, but a very definite nebula, of such form and with such peculiar velocities and densities in the different parts, that the present system must have been produced to the exclusion of every other. No other nebula could have condensed into our present stable system. Whatever of purpose the heavens once showed they show it still, in spite of any tenable nebular theory.

The demands we must make upon the theory before it fits the facts are very great. No theory is simpler to the unmathematical reader; none, upon examination, needs more bolstering. The popular statement is charmingly simple: The matter of our system was once dispensed so as to spread beyond its present bounds. This matter contracted on itself, and in accordance with a well-known mechanical law—the law of equal areas—it began to roll more rapidly as contraction went on. The result was, that at the equator of this mass a centrifugal limit was at last reached; and a ring of matter was left behind. This ring afterward broke up and collected into the planet Neptune. In the same way other rings and other planets were formed. These planets would all lie in the same plane, and would have a common direction of both orbital and axial motion. Thus some of the more striking features of the solar system seem to

find an easy and simple explanation. The notion of a vast nebula revolving upon its axis, and throwing off rings, is a simple one; and the process seems easy. But unfortunately, by the time the theory is adjusted to the facts, all this simplicity is gone. The end to be reached is a stable solar system; and it is well known that if the masses, or the orbital periods, or the relative distances, or the orbital eccentricities of the planets differed much from the actual ones, the system would soon fall into ruin. If Jupiter had as eccentric an orbit, not as the asteroids, but as Mercury only, the result would be disastrous. The present system may not be absolutely stable; but it would not be stable at all if the present orbits, masses, etc., were much changed. Very slight changes would make life impossible on our planet. Here is an end, and here is adaptation to secure it, according to the theist. The nebular theory, it is said, gives a simple explanation of the facts without the aid of intelligence. Let us see how.

How shall we think of the nebula? First of all, not as proper gas, but simply as diffused matter; for on any theory, gases tend to indefinite expansion, and are not easily brought to contract. Was it hot or cold? The authorities differ. Some make it contract from cooling; others make it heat from contracting. But this point is unimportant, and besides, the views are not as much opposed as they seem. We must not think of the elements as arranged according to their specific gravities, as that would send hydrogen out to Neptune, and leave only the metals for the inner planets and the sun. No more may we regard them as homogeneously diffused.

They must, rather, be so mixed that the weights of the resulting planets shall be such as the stability of the system requires; and in particular, the earth must be well supplied with the elements which condition life and civilization. We must also think of the nebula as rotating, and with the same amount of motion which the system has at present; for the principle known as the conservation, or equality, of areas, makes it impossible for any mass of material elements to vary its amount of rotary motion, measured in any direction whatever. If, then, the nebula were ever without revolution, it would always have remained so. Rotary motion, in a material system, is either eternal, or it is introduced or destroyed from without. But none of these points are of much moment. The first great difficulty of the theory is, to get rings of any sort thrown off. The non-mathematical reader who has seen the popular lecturer perform Plateau's experiment, in which a sphere of oil is made to revolve and throw off rings, finds the process very simple; but the mathematician can do nothing with the problem. The difficulty is this: By contraction the atoms are brought nearer together, and the attractions between them are strengthened. But by the same contraction, the rate of rotation grows more rapid, and the centrifugal force is increased.* Now, it is clear that unless the centrifugal force increase more rapidly than the attractive force, no ring can be detached.

* This is not a contradiction of the constancy of the amount of rotary motion, because that amount for a particle is measured by its distance from the axis into the distance rolled. Hence, a small body rotating rapidly, may have the same amount of rotary motion as a large one rolling slowly.

But if it does increase more rapidly, then when the forces are once balanced, matter will drop off constantly at the equator thereafter. For each new contraction lifts the centrifugal above the central forces, and new matter is left behind. The result is, not a series of rings at great distances from one another, but a lens-shaped sheet of matter, in the plane of the equator of the revolving nebula. This result follows equally if we adopt La Place's notion, according to which the planets were formed from the sun's atmosphere, and are much younger than the sun. Such an outcome can be escaped only by arbitrarily assuming equatorial currents of matter of vastly greater velocity than the parts beneath them; and such currents can be explained by no action within the mass.* Another great difficulty lies in the relation of the orbital periods of the planets to the axial rotation of the sun. The most natural supposition about the nebula is, that, like a wheel, it all revolves together, or all parts go around the axis in the same time. But such a supposition would be fatal to the theory; for the orbital periods of the planets represent the time of the sun's rotation when it filled the orbits of the planets. The sun should have revolved once in a year when it filled the orbit of the earth, and once in about one hundred and sixty-five years, when it filled the orbit of Neptune.

* Professor Newcomb, ("Popular Astronomy," pp. 514, 515,) gives an extremely provisional assent to the nebular theory, and points out its chief weaknesses. The greatest difficulty, he thinks, "is to show how a ring of vapor surrounding the sun, could condense into a single planet, encircled by satellites." The entire work is marked by a careful distinction of fact from theory, and deserves the highest praise.

But knowing the present rate of the sun's revolution we can reason back by the principle of equal areas to the time of revolution it must have had when it filled these orbits. Unfortunately, theory and fact differ. If the theory be true, the sun, instead of revolving once a year when it filled the orbit of the earth, should have revolved only once in three thousand two hundred years. Instead of revolving once in about one hundred and sixty-five years, when it filled the orbit of Neptune, it should have revolved only once in about two million eight hundred thousand years. We get similar divergences between fact and theory if we calculate the result for the other planets and the moons. Finally, Mars has displayed a set of moons which revolve around the planet in less time than it turns on its own axis. Here contraction has resulted in retarded, rather than accelerated, motion. To lessen this divergence, La Place assumed that the sun was older than the planets, and that the nebula was simply the solar atmosphere. But this only diminishes, without removing, the divergence, and greatly increases other difficulties. The thoroughgoer wishes to have sun and all explained as condensed nebula. But here, again, we may relieve the difficulty by once more assuming equatorial currents, generated from without. In no other way can we save the theory. We must abandon the notion of a common angular velocity, of a regular variation of density, and of a regular increase of axial rotation ; and make the velocities, and the densities, and the rotations, just such as the facts call for. To be sure, it is mechanically impossible that all these effects should be produced by any action

within the mass; but we may adopt the suggestion of Mr. Spencer, that bodies are plunging in from without, and that they may adjust matters. There are lots of roving nebulæ which would be willing to leap in and spur up the revolving nebula so as to leave a ring of the right size at the right place. But this is a delicate operation; for unless the ring be of a certain size and in a certain place, and have a certain orbit, the stability of the system will be endangered. Care must also be taken that the new nebula fall in with the direction of rotation in the old; and it must be especially careful to hit near the equator, and parallel with it: otherwise the revolution would be set back, or the ball would be knocked out of its plane; and thus the stability of the system would be once more endangered. If it should occur to any one that this is a hap-hazard way of working, he need only think of the nature of things, and all difficulties will disappear. Of course, this is not meant as a disproof of the nebular theory; it is only intended to show that the simplicity of the theory, which is its great charm, must be given up if it is to fit the facts. And we think it clear, that by the time the necessary auxiliary hypotheses are made, the theory is wonderfully like a dough-face, whose nose may be put on indifferently up or down. In truth, the theory has largely fallen into disfavor with mathematical astronomers, and is held by them chiefly on grounds of physics. Its best friends are the magazine scientists. We conclude, then, that while the matter of our system may once have existed in a nebulous state, the no-design argument makes a sorry show in explaining its aggregation into present

order as a mechanical necessity. For it explains the stable system, and fits the earth for life and civilization, not by any nebula, but by a nebula which shall be either so arranged within itself, or so beaten upon from without by other nebulæ, that the masses, and eccentricities, and distances, and orbits, and times, and composition of the planets, shall be just what they must be to secure the result. It may be said that the solar system displays no marks of design. Opinions differ. We only claim that if there are such marks, there is nothing in the nebular system to explain them away. Once in awhile, some one proposes to apply the principle of natural selection to astronomy, and thus, by trial, reach a stable system; but such a plan shows such dense ignorance of the first principles of mechanics as to call for no criticism.

A second general criticism upon the mechanical theory is, that besides assuming every thing at the start, it can, at best, only result in "a drawn battle against teleology."* No theory can deny the general adaptation and harmonious interaction of things; and hence, if they were created, they must be viewed as the product of transcendent wisdom. The attempt to eliminate or lessen these purpose-like adaptations, by going back in time, we have seen to result from mental con-

*A scrap of authority may be welcome to those who need it. According to Professor Huxley, "The teleological and mechanical views of nature are not necessarily exclusive. The teleologist can always defy the evolutionist to disprove that the primordial molecular arrangement was not intended to evolve the phenomena of the universe."—*Academy*, October, 1869.

fusion and a certain bondage to the senses. Mechanism can introduce no harmony or adaptation which was not always implicitly in the system. Hence, after the atheist has referred every thing to the atomic mechanism, the theist may insist that the mechanism be explained. He may claim that it was made to do its work; and, if we should allow that this cannot be proved, it is plain that it cannot be disproved. The theist insists that the very thing to be explained—the harmonious interaction of things for the production of purpose-like effects—is not explained at all, but assumed. The atomic mechanism has all the marks of a manufactured article, and the theist demands that we go behind it to a prearranging mind, which is the only real explanation of harmony and adaptation in a manifold of objects and effects. Here the atheist is completely at his mercy, unless he show not only that the atomic system can be conceived as standing alone, but, also, that the various facts known about it compel the mind to affirm its self-existence and independence. If, on the other hand, the theist can show that the known facts forbid us to assume its independence, then the teleological argument comes back with absolute conviction.

That the atheist can furnish no such proof, is almost self-evident. The nearest approach to it would be an attempt to show that the properties of matter could not be other than they are, and that, therefore, the very notion of matter carries the present order with it. For example, the conception of matter seems to imply that it necessarily fills space; and if its activities and their

laws resulted with the same rational necessity from the notion of matter, then it might seem fitted to be a first fact. The truths of geometry and arithmetic appear able to stand alone, and we build mathematical and logical systems without feeling any need for a support, because they are self-supporting. If the notion of matter carried the present order with it, just as the mathematical axioms carry mathematics with them, it might serve as a first fact. But it is hardly necessary to point out that this is not the case. If we except the single property of extension, not a shadow of rational necessity can be shown for a single circumstance connected with the atoms. They have a definite number, but no reason can be given why that number should not have been more or less. They fall into two great classes, ponderable and imponderable; but it is quite conceivable that there should have been only one class, or any number of classes, and all of them different from what they are at present. The ponderable atoms again fall into some sixty classes; but there is no difficulty in the notion that there should have been $n$ classes, and that the present classes should not have been. The case is not altered, if we view them as compounds of some simpler unit; for this simpler unit must have had definite properties and relations in order to form definite classes with peculiar properties. Certain of these atoms, again, have a chemical attraction for certain others; but it is perfectly conceivable that this attraction should have extended to more or less atoms, and that the combining power should have been greater or less. The elements have various active properties; but

it is entirely conceivable that these should have been more or less, and that they should have followed other laws than they do. The ponderable elements have all an attraction of gravitation; but it is quite conceivable that they should not have it, and that it should vary as some other law than that of the inverse square of the distance. It was a whim for a time with some speculators who thought mainly with their eyes, that the inverse square is a necessary law of all central forces. They were seduced into this by the idea of some subtle ether streaming out from a center; and, of course, the amount of this ether on a given surface would vary inversely as the square of the distance from the center. But they forgot to inquire where this outstreaming ether came from, and how an outstreaming could cause an attraction or an in-going. They further failed to notice that on this law there could only be one force, either of attraction or of repulsion, or none in the universe. If the forces of attraction and repulsion were balanced at any point, they would be at all, and they would cancel each other. If not balanced, then one would keep the upper hand forever, and practically annihilate the other. But the worst failure of all was the failure to see that the majority of central forces do not vary as the inverse square of the distance, but as inverse higher powers of the spaces. Neither gravitation nor its law can be viewed as necessities of thought No more is its extent necessary. The most forces act only at molecular distances, and no necessity of thought can be shown why gravitation of all the forces should extend across the whole diameter of the sidereal system.

The elementary forces of the universe vary only with the spaces across which they act; but no necessity can be shown why they should not vary with the time, or with the velocity, or with the mass, or with the mode of aggregation. In most of these cases a clear teleological reason for the present order can be given, but there is not a shadow of metaphysical necessity. If there were no universal force, the universe would be a straggling mob of unrelated atoms. If gravitation followed any other law than it does, it would introduce the profoundest changes into the system, and threaten the stability of the whole. If there were no chemical properties, a stupid mass of uniform matter would result. If their combining powers were other than they are, we should have dead immobility or utter instability. If oxygen and nitrogen combined like oxygen and hydrogen, a single spark would shatter the earth. If the relation of the air to radiant heat were slightly modified, life would be impossible, because of the resulting heat and cold. If water evaporated only at a high temperature, vegetation would soon be parched off of the earth. If the air were speedily saturated with vapor, or if its absorbent power were much increased, the result would be disastrous. There are no water-works in any of our cities which display any thing like the contrivance of the water-works of the skies. But these, and a million other laws, are no necessities of thought. They all have the look of contrivance for an end.

But, even granting the necessity of the present laws of matter, the actual results are not necessary; for ex-

ample, the present law of gravitation is quite compatible with other orbital motions than those of the planets, and even with no orbital motions at all. Hyperbolic and parabolic orbits are just as possible as elliptical orbits; and dead rest, or a common mass, is as possible as orbital motion. The choice depends upon the original disposition and velocities of the elements; but here, again, no necessity can be shown why they should have been so arranged as to move in an ellipse, and not in an ellipse or hyperbola. Of course, no life would have been possible otherwise, as the planets would have been whirled out into space, and cold, and darkness, never to return. That this does not happen now, is due solely to the great distance of disturbing bodies; and as it is, comets occasionally get switched off, and never come back. It is a direct demand of the law of gravitation that the elements should have arranged themselves in the nebula according to their specific gravities; but that would have sent hydrogen out to Neptune, and left only the metals for the earth and sun; and, again, life would have been impossible. Such a result could be warded off only by assuming such a peculiar disposition of the elements, that this effect was not produced. But no one would claim that such a disposition is the only conceivable one. We often delude ourselves with the notion that the fixed laws of the elements make only one result possible; whereas, what those laws shall produce depends entirely upon the conditions under which they work. In themselves, they are just as compatible with phenomenal chaos as with phenomenal order. Thus the elementary laws of matter, and even

the laws of motion, appear as contingent, meaning thereby that they might conceivably have been altogether different. Still more is this the case with the arbitrary conditions under which they work, and which determine the actual outcome. The theist might, then, claim with some show of justice, that the foundation stones of the physical system are stamped with the marks of choice and purpose. If, now, we ask why, out of the myriad conceivable possibilities, the present intelligible order has been realized, the theist answers that the nature of the elements, their laws and mutual relations, were all determined with reference to the end they were to realize.* The atheistic answer is, that things exist as they do, and that no more need be said about it. At all events, the atheist can give no other answer as long as he remains true to his mechanical principles.

We conclude, then, that the no-design argument, based on the mechanical view of nature, can never secure a stronger verdict against theism than not proven. It is, also, clear that mechanism and teleology can never properly collide, for the teleologist seeks an explanation of the purpose-like arrangement and working of things,

*In the volume on Theism, in the English and Foreign Philosophical Library, the chief argument is, that the conservation of energy explains every thing. The author's knowledge is purely verbal. This doctrine no more explains the design in things, than does the related one of the indestructibility of matter. Both doctrines are compatible with utter phenomenal chaos. The cause of the phenomenal order, therefore, must be sought elsewhere. The doctrine in question is a mere commonplace, and is utterly powerless to throw any light on philosophical questions.

and mechanism assumes it; or, rather, teleology demands an explanation of the mechanism. The question, then, is not whether the mechanical view or the teleological view is the correct one, for both may be true. The mechanical system may exist for the realization of preconceived ends. Both theist and atheist may quite agree as to the existence of the mechanical system, but the theist holds that that system has all the evidences of manufacture. Thus the question between them takes on, at last, this form: Can purpose-like effects prove the existence of an intelligent cause; or can purpose-like adaptations in a manifold prove its dependence on an intelligent cause? Now, concerning this system, we have seen that no rational necessity can be shown for any of its determinations, unless we think of it as made for an end. We have seen its extreme complexity, and the impossibility of deducing any thing from it which was not contained in it. And here are some facts: (1) The only known explanation of harmonious co-working and adaption in a manifold, is a prearranging mind; and if this explanation, which is so potent in our experience, be extended to the natural order, it makes the facts luminous, and satisfies the demands of the mind. (2) That this atomic system exists is not a fact of knowledge, but of inference only. The attempt, therefore, to play off the atomic theory as fact, against the theistic theory as mere hypothesis, betrays a remarkable mental or moral condition. (3) That nothing exists but atoms is sheer assumption and dogmatism. (4) We have not a shadow of mechanical insight into most of the inorganic processes of

nature, and none whatever into the simplest organic processes. The assumption, therefore, that all action is mechanical, is not based upon knowledge, but upon an *a priori* metaphysical theory. (5) The aim of all hypotheses is to enable the mind to comprehend the facts. (6) That hypothesis has the best claim to recognition which is simplest and most rational. Now, in the light of these facts, which is the more satisfactory explanation, the theistic theory that nature has its root, and the explanation of its order, in an eternal, omnipotent, and omniscient spirit; or the atheistic theory of an eternal mechanism, whose parts, indeed, work together as if they had been contrived, but which, nevertheless, are unoriginated and mutually independent? Remember, always, that it is not fact against theory, as is so often assumed. It is theory against theory, with reason to judge between them. Certainly the theist need never feel ashamed of his faith in holding that such a mechanism cannot be the first fact of the universe, but that, back of it, there must be a unitary and intelligent being.

A final difficulty with the mechanical theory is, its explanation of human thought and action. A common fault with speculators is, to overlook the fact that man is a part of the system. The human mind, therefore, and its purposive activities, must be explained by the mechanical theory if it is to be adequate to the facts. And here it appears that mind in general is known only by its effects. The human mind is as much hidden from observation as is the infinite mind. We are con-

scious of thought and purpose in ourselves. That they exist elsewhere is purely a matter of inference. And here we come upon the difficulty which has always pressed the mechanical theory since the time of Descartes. The same argument which disproves the existence of mind behind physical phenomena, disproves the existence of mind in any of the human forms we see. How does one know that the various living forms about him are sensitive and intelligent? The reply must be, that they act as if they were. But here the mechanical doctrine comes in with just as much reason as in the case of the universe, and urges that these physical forms are so constituted, that when acted upon they react, with divers manifestations which seem like feeling and thought, but in truth they are only very complex mechanisms, without any inner life. The "as if" by which the atheist discredits mind in nature, is even more effective against mind in man. Certainly, if the construction of the body manifests no thought there should be no difficulty in admitting that the motions of the body can take place without any guiding mind. One may urge that others tell us that they think and feel, but this telling is also a mechanical effect, with a mechanical cause, and does not alter the argument in the least. If the nature of things is sufficient to explain the universe without intelligence, it is certainly capable of explaining the action and reaction of the human body without intelligence. If the mechanical explanation of nature is sufficient, there is no ground for believing that the forms about us which we call living are really sensitive and intelligent. But

if, on the other hand, such a notion is impossible, and we may be practically sure of our neighbor's intelligence as we are of our own, and that because he acts intelligently, what becomes of the doctrine that no action of natural causes can prove the reality of mind? If a physical organism can so act that we are sure there is a mind controlling it, why may we not conclude, when natural agents act in the same way, that there is a mind controlling them? Both conclusions stand or fall together. A few scratches on a piece of flint convince the archæologist that mind has been there, although the scratches are its only trace; and the purpose-like miracles of nature are at least as strong evidence of mind as the hacked flint. It will occur to the thoughtless to say, that we know from experience that human works are contrived, but we have no such experience with regard to nature. In truth, however, no one knows that any work but his own is contrived, except by the purpose it shows; but if purpose-like action proves the reality of the finite mind, it can prove the existence of the infinite mind also. The only escape from this is to deny the substantial existence of the human mind, and make all mental action an outcome of physical necessity, and consciousness a delusion. Mr. Huxley bordered on this position in his lecture, "Are Animals Automata?" but he limited the doctrine, with regard to man, by saying* that though man is only a conscious automaton, still he is "endowed with free-will in the only intelligible sense of that much-abused term; inasmuch as in many respects we are able to do

* "Fortnightly Review," November, 1874.

as we like." The name is nothing; the meaning is every thing; and though it is somewhat surprising to hear man called an automaton, we steady ourselves by remembering that this term, in Mr. Huxley's mouth, is only a pleasing rhetorical novelty, for the automaton is admitted to be able to do what it likes. A device of this sort, therefore, will not help us out; but we must make men real automata if we are to save the mechanical theory.

Even this position is held by some who claim to be advanced; but the denial is not yet complete. Automatism does not escape the necessity of admitting purposive action in the system so long as consciousness is allowed to stand. For man is a part of nature, and he does act with purpose. In human activity, purpose controls the arrangement and action of efficient causes. But man's activity, on the mechanical theory, would be only the activity of nature, and hence it would follow that nature does act with purpose, at least in living beings. In one department of natural activity, it is certain that purpose controls action; but if this is possible in the department of conscious life, why not possible in the outer world? The claim that purpose is nowhere controlling in the system, breaks down, and hence the extent of its control is purely a matter of evidence. But, as we have said, we have just as good ground for believing in controlling purposes in nature as we have in human action. The purposive character of human action cannot be denied without breaking down consciousness. And some of the more logical take even this step. Consciousness is held to be but a delusive

and powerless attendant upon the mechanical processes which underlie it. All appearance of control over our activities, all sequence of thought upon thought, or of act upon thought, is sheer illusion. But by this time we reach, not science, but utter skepticism. Here, then, is the dilemma of the mechanical theory: either it must allow the testimony of consciousness, or it must disallow it. In the former case it cannot deny the reality of purposive action in the system of things, and the question of its extent is simply one of evidence. But as natural action exhibits the same marks of intellectual arrangement, we cannot deny it in the former without denying it in the latter. In the second case, the repudiation of consciousness, all knowledge vanishes, and the very data of science are destroyed. In truth, the no-design argument is thoroughly skeptical in its tendencies. If the plain indications of things, and the demands of reason, are to be explained away in the interests of atheism, there is no reason why every thing should not be explained away in the interests of skepticism. The nature-of-things argument, which assumes adaptation without a designer, is abundantly able to explain every thing else in the same easy way. We cannot explain the existence of fossils on mountain tops except by assuming that the mountains were once under the sea, and that the fossils were once alive; but the nature of things needs no such assumption. If it could bring organic matter together to form a living organism, it must certainly be competent to produce an imitation. The geologist thinks he detects traces of fire in many of the rocks; but if the nature of things is such as to

produce the appearance of intelligence without its presence, it certainly might produce the appearance of fire. In short, no science could stand for a moment if the principles of the no-design argument were allowed. Here, again, it will occur to the thoughtless to say, that we have experience in these cases, but we have no experience of purpose in nature; but the claim is false. In the case of fire rock we know that heat could produce such appearances; in the case of intellectual arrangement in nature, we know that mind would produce such order. The argument is equally good or equally worthless in both cases. In short, all objective science is based upon an "as if;" and if we distrust the theistic "as if," the scientific "as if" must also fall a prey to skepticism.

Upon the whole, we must conclude that the mechanical theory makes, at best, but a sorry showing when it attempts to stand alone. We have no war with the mechanical doctrine as a partial and secondary fact. We object to it only, as an ultimate and universal explanation of things. Before it is able to cope with the simplest facts of inorganic nature it becomes so complex that the mind finds little satisfaction in it as an ultimate fact. By the time the organic world is included in it, the theory becomes a simple wax nose, which can be twisted in any desirable direction. As such, it is held, not because it affords a shadow of insight into the facts, but because of the tacit assumption that these mechanical agents include all real being, and that hence they must explain the facts, even if we cannot see how. The theory is purely a metaphysical one, based upon

the assumption that all action is mechanical, and that all being is material. As a matter of fact, we have infinitely more insight into the purposes of nature than into the methods of their realization; but if the assumption mentioned be allowed, we may be sure of the sufficiency of the mechanical theory. If we grant that once upon a time there was nothing but the physical elements, it is easy to see that they must have produced the order of the visible system, and for the simple reason that there was nothing else to do it. When thought and action are reached, the theory is forced to deny all freedom, and finally to forsake its fundamental principle, that natural activity knows nothing of expectation. Thus, it comes down finally to the notion of a mechanism which can form plans and adjust the means for their execution. But here, as every-where, the name is indifferent, if the thing be understood. That which forms and executes plans may be called a mechanism, if the name pleases so much, but it is just what most of us mean by mind.* Thus the mechanical theory, by an inner dialectic, passes over into its opposite and cancels itself. The determination to explain every thing by mechanism makes it necessary to give the mechanism mental qualities. Bearing these facts in mind, it hardly seems presumptuous to claim, that, as an ultimate and universal theory, the theistic doctrine

* Since the time of Locke, some speculators have busied themselves with the question, Can matter think? It is a simple matter of definition that matter, as commonly conceived, cannot think; but there is no great gain in affirming that matter can think if its notion be extended to include thinking. The question is a verbal squabble.

is a more simple and satisfactory hypothesis. This conclusion we reach from considering only the teleological aspect of things; and it is the one reached by the common sense of mankind. It cannot be questioned without involving science itself in universal skepticism.

In concluding this discussion, it may be allowed to restate the argument in another form. Hitherto we have allowed matter to be a real existence, and have claimed only that it is not self-sufficient. On the basis of this admission, the atheist argues as follows: Matter is a real cause of phenomena. All the more complex natural manifestations are explicable as results of the primal qualities and laws of matter. Matter, then, explains much, and is daily explaining more. The physicist cannot question that every physical fact, no matter how high its order, is a necessary outcome of its physical antecedents. But by the law of parsimony we are forbidden to assume causes beyond necessity. Before, then, we appeal to God, let us find out what matter itself can do. We certainly have no right to assume a spiritual cause unless we know that material causes are inadequate. But who knows all the capacities of matter? Every day it becomes more mystic and wonderful, and who shall set a limit to its powers? By the law of parsimony, therefore, theism is an unnecessary hypothesis, until it has proved a negative.

This argument is a very common one, and there seems to be great force in it. In truth, however, it rests upon complete ignorance of philosophy. It assumes

that matter is known as a causal noumenon; whereas it is a commonplace of philosophy, that causes of any sort are never seen, but inferred. Matter as noumenon is as hidden to sense-perception as God is; and it is withal just as metaphysical a conception. Now what the theist wishes to know is, not what we shall call the power behind phenomena, but how we shall think of it. People who really think do not war about names provided the thing be understood. Hence propositions to define matter anew fill a thinker with amazement. They are totally irrelevant, and denote an infantile stage of thought. The theist, then, is quite indifferent as to the name of the ultimate reality; and except that the word is misleading in its implications, he is as willing to call it matter as mind. But what he does view as important is, to form some conception of its nature; and this question must always be answered by an inference from the phenomena. Now the alternative can never be escaped of regarding the basal reality as intelligent or non-intelligent. The notion of a third something, which is neither, is simply a verbal phrase, and represents no thought. The atheist chooses, for it is a choice, to regard it as non-intelligent. Here the views divide. We may regard this non-intelligent reality as one or many. In the first case, we have a pantheistic atheism; in the second, we have atheistic atomism. In the first case, the atheist explains the world by a blind power which works at a multitude of discrete points throughout infinite space; which also works in each of these points with exact reference to all other co-existent and sequent activities; and which finally combines all

these activities with infinite skill into infinite products, all compact of seeming purpose, yet without any knowledge of itself or of what it is doing, or of the order it founds or of the plan it follows. In the case of atheistic atomism, we explain the world by an indefinite swarm of self-existent atoms, which nevertheless are not independent, but which do constantly correspond to every other throughout space, with the most mathematical exactness, and which also work together as if animated by a common purpose; yet all the time without any knowledge of themselves, or of their fellows, or of the order which seems to rule them. No talk of natural law will affect this alternative; for the law is but an abstract from the facts to be explained. Such, then, being the implications of atheism, the theist holds that theism requires less faith.

In the previous chapter we saw that universal adaptation among natural agents is a postulate of all science, and that the principle of finality is a postulate of the organic sciences. In this chapter we have seen the attempt to discredit finality by the mechanical theory of nature to be both a failure and suicidal. If there is mind in man, there is mind in nature. We believe, then, the principle of finality to be firmly established; it only remains to utter a word of caution as to its use. It is often strangely held, that because a thing is an end in nature, it cannot also be a means. The word final, in the phrase final cause, seems to be at the bottom of this misconception. But there is nothing in the doctrine to forbid the thought that ends may be

higher and lower, or that a thing may be an end with reference to the agents which produced it, and yet a means with reference to higher ends. We may also believe in finality in the system, without pretending to discern the ultimate purpose of the whole. The end of things is out of sight. Indeed, that the system as a whole has a purpose, is not clear to observation. We perceive a great multitude of minor ends which indicate that an intelligent power is at work, but it is not easy to make out a definite drift for the whole. That there is such a drift we conclude from the fact that the power is intelligent in its minor operations, and especially from the moral and religious nature, which will never allow that the physical system can be an ultimate end with an intelligent being. There must be an end, though we cannot see it; and that end must be to develop souls, though we do not see how all the arrangements of the present life are necessary for such an end. To conclude that there is no end because we do not see any, is to assume omnipotence. The gigantic growths of the ancient forests seem wasted when viewed from without; but coal plays an important part in civilization. The prodigal production of the cereal grains seems wasteful enough, if we assume that reproduction is the only end aimed at. It does not seem such folly when we remember that society could not exist without corn. Indeed, some of the greatest triumphs of human invention seem stupid enough from the outside. A savage visiting a city and seeing the unsightly telegraph lines, might conclude that they had no purpose, or at best that they were meant as perches

for sparrows. But there is nothing irrational in believing that a power which is seen to be intelligent where we can comprehend its action, is also intelligent in realms where we cannot detect any purpose. Nevertheless, it must be allowed that the final purpose for which all lower ends exist, that "far-off divine event to which the whole creation moves," is not revealed to our knowledge, but to our faith. We would use great reticence, therefore, in speaking of the divine purposes, for a sufficient insight is lacking. Least of all, would we have physical science diverted from its study of phenomenal laws in order to search for final causes. Such a course could result only in religious and scientific scandal. There are two ideals toward which the mind strives: first, to know how every thing is done; and, second, to know what it is done for. Both ideals are unattainable at present; but the study of the methods of nature is practically of vastly more importance in physical science than a study of the purpose of things. It is with our belief in purpose, as with our faith in a divine providence. If this faith be attacked, we are ready to show that there is no reason for being ashamed of it. And yet from no feeling of shame, but from reverence rather, we prefer not to have that great name too often upon our lips, but content ourselves with believing that our times are in God's hand without specifying too curiously how he is working out his will concerning us.

## CHAPTER V.

### THE CONSERVATION OF ENERGY.

THE man who journeyed from Jerusalem to Jericho fell among thieves. The doctrine of the conservation of energy has been still more unfortunate; it has fallen a prey to the magazine scientists and rhetoricians. These have stripped it of its true meaning, and saddled false ones upon it, until scarcely any likeness to its scientific self remains. "We read constantly," says Professor Tait, "of the so-called 'physical forces'—heat, light, electricity, etc.; of the 'correlation of the physical forces,' the 'persistence or conservation of force.' To an accurate man of science, all this is simply error and confusion." * These misunderstandings of the doctrine have given great support to materialism and atheism. Hence the need of examining the subject.

The doctrine in question was first known as the correlation and conservation of the forces. The forces were said to correlate, and hence force is one. Force was also said to be conserved, and hence was presumably eternal. But this terminology was treacherous; for force is defined in text-books on physics and mechanics as any thing which tends to change the condition of a body whether in motion or at rest. Hence, gravity, cohesion, affinity, repulsion, pressure, impact, etc., were all

* "Recent Advances in Physical Science," p. 389.

arranged under the head of force. Now, as the forces were said to correlate, it was easy to blunder into the notion that all the attractive and repulsive forces of matter can pass into one another. It was not uncommon to hear it asserted that chemical affinity, and even repulsion, were but transformed gravity. Even the space-filling quality of matter depends upon force; and since all the forces correlate, it occurred to some speculators that solidity and inertia also must, in some way, correlate with the other forces. Other speculators, whose ignorance was equally dense and exhaustive, urged that this would never do; as in such case matter might go off in a puff, and thus nothing would be left. This necessity of limiting the correlation, was felt as a great hardship by the more radical speculators; and was regarded as a victory by the conservatives. The discussion was mainly a logomachy without a ray of insight into the scientific meaning of the doctrine. All things are phenomena of force; and are not gravity and repulsion, and life and mind and matter and every thing, forces? How, then, can we deny their correlation? With this understanding of the doctrine, Mr. Herbert Spencer proceeded to prove a rich variety of propositions, such as the indestructibility of matter, the continuity of motion, the correlation and equivalence of physical and mental force, the impossibility of freedom, and divers sociological laws. Mr. Bain found in it the reason why one cannot attend to many things at once, or become great in many directions. So terrible are the ravages in physics of arguing from words without attending to their scientific content.

The doctrine of the constancy of force suffered no less from this verbal exegesis. Inasmuch as force is constant, what shall we make of the fact that all the attractive and repulsive forces vary with the distance across which they act, so that while their law is constant, they themselves are incessantly varying? In the case of gravity, a body at half the distance acts with four times the energy; at double the distance, it acts with only one fourth of the energy. Whence the gain and loss of power? Since force is constant, the idea of creation or destruction is inadmissible; whence, then, the increment, and whither the decrement? No less a man than Faraday was sent off on a wild-goose chase by reasoning of this sort; and he concluded that it must come from, and return to, the ether—that limbo of scientific difficulties. He argues at length that without some such assumption we come in hopeless conflict with the doctrine of conservation.* Strangely enough, it never seems to have occurred to him that this result bordered on a *reductio ad absurdum* of the conservation doctrine.

In like manner the doctrine that work involves the expenditure of force was misunderstood. Inasmuch as an attracting body is forever pulling at all the rest of the universe, it occurred to many speculators that the attracting forces of the elements must be wearing out. They have already pulled the matter of our solar system through vast spaces, and condensed it into comparatively very small spaces. Now as a vast amount of work

* See his paper in "The Correlation and Conservation of Forces." D. Appleton & Co.

has been done; and as work involves the expenditure of force, of course the attractions are growing less and less. Opposed to this conclusion, however, was the awkward fact, that, in truth, the attractions are now stronger than ever before; and thus the doctrine of conservation was again endangered. To escape this difficulty, some speculators imagined that motions may become attractions or repulsions, and conversely. That motion implies something which moves, and attraction something which attracts, and that a moving thing, as such, is not an attracting thing, was a fact of which they had not the slightest suspicion. This impossible identification of motion and attractive or repulsive force seems to underlie the following extraordinary statement by Mr. Grove, whose treatise upon the correlation of the physical forces is popularly supposed to be classical:—

"Of absolute rest nature gives us no evidence. All matter, as far as we can ascertain, is ever in movement, not merely in masses, as with the planetary spheres, but also molecularly or throughout its most intimate structure, . . . so that, as a fact, we cannot predicate of any portion of matter that it is absolutely at rest. Supposing, however, that motion is not an indispensable function of matter, but that matter can be at rest, matter at rest would never of itself cease to be at rest; it would not move, unless impelled to such motion by some other moving body or body which has moved. This proposition applies not merely to impulsive motion, as when a ball at rest is struck by a moving body, or pressed by a spring which has previously been moved,

but to motion caused by attractions such as magnetism or gravitation." *

If by rest equilibrium is meant, this passage is true and trivial; otherwise, it is in such opposition to elementary mechanical physics, and even to the true doctrine of conservation, that it is difficult to conceive how any one, acquainted with the most rudimentary principles of physics, could make it. The physicist is constantly considering cases of motion generated from a state of rest by the mutual attractions of bodies. All that is needed is mutual attraction, with space through which to move. A great proportion of mechanical problems are of this kind. If Mr. Grove's statement were true as it stands, the whole science of dynamics would be at an end. But it would not pay to unravel its possible meanings. The root of the blunder lies in the assumed correlation of force and motion.

Yet, in truth, there was a certain grandeur in those rhetorical misunderstandings. The notion of one universal power, forever equal to itself but of infinite manifestation, had great attraction for speculative minds; and, withal, it offered manifold opportunities for fine writing. Proteus was almost worn out by the demands made upon him for illustration. Physics, it was said, had come to the aid of metaphysics, and solved magnificently the problem of the beginning and the end, over which philosophy had puzzled in vain. There is neither beginning nor end. Nature is a cycle returning into itself, and hence self-centered and eternal. As such it rolls on forever, manifesting its various

* See chapter on "Motion in Correlation of Physical Forces."

phases, and bringing to life and death. It may be well to quote a few passages in illustration of the correlationists' exalted state of mind at this period.

According to Dr. Bray, in his "Anthropology," "The scientific idea of force is the idea of as pure and mysterious a unity as the one of Parmenides. It is a noumenal integer, phenomenally differentiated into the glittering universe of things." It would be easy to fill pages with such dazzling matter; but volumes of it would give no information, and we content ourselves with one overwhelming glory from the pen of Dr. Youmans:—

"Thus the law characterized by Faraday as the highest in physical science which our faculties permit us to perceive, has a far more extended sway; it might well have been proclaimed the highest law of all science—the most far-reaching principle that adventuring reason has discovered in the universe. Its stupendous reach spans all orders of existence. Not only does it govern the movements of the heavenly bodies, but it presides over the genesis of the constellations; not only does it control those radiant floods of power which fill the eternal spaces, bathing, warming, illumining, and vivifying our planet, but it rules the actions and relations of men, and regulates the march of terrestrial affairs. Nor is its dominion limited to physical phenomena; it prevails equally in the world of mind, controlling all the faculties and processes of thought and feeling. . . . Star and nerve-tissue are parts of the same system—stellar and nervous forces are correlated. Nay, more; sensation awakens thought and kindles emotion, so that

this wondrous dynamic chain binds into living unity the realms of matter and mind through measureless amplitudes of space and time." After this unspeakable flight, the writer continues: "And if these high realities are but faint and fitful glimpses which science has obtained in the dim dawn of discovery, what must be the glories of the coming day? If, indeed, they are but 'pebbles' gathered from the shores of the great ocean of truth, what are the mysteries still hidden in the bosom of the mighty unexplored?"*

Echo may safely be left to answer these questions. Pending such reply, the best criticism of this rhetorical flummery, will be to develop the doctrine of conservation as scientists understand it.

By a happy change of terminology, scientists have escaped the confusions attendant upon using the word force. The doctrine is now known as the conservation of energy—a phrase which will be explained further on. Meanwhile, we remark that the doctrine says nothing whatever about the inner nature of matter whereby it is enabled to attract or repel; still less does it affirm any correlation between these qualities. It does not pretend that chemical affinity or cohesion is transformed gravitation, but all alike are accepted as primary and irreducible. "We must not imagine the chemical attraction destroyed, or converted into any thing else." "In no case is the force which produces the motion annihilated, or changed into any thing else." "Of the

* "Correlation and Conservation of Forces." D. Appleton & Co. See Introduction by E. L. Youmans, M.D.

inner quality that enables matter to attract matter we know nothing; and the law of conservation makes no statement regarding that quality. It takes the facts of attraction as they stand, and affirms only the constancy of working-power. The convertibility of natural forces consists solely in transformations of dynamic into potential, and of potential into dynamic, energy, which are incessantly going on. In no other sense has the convertibility of force, at present, any scientific meaning." * In order, however, to affirm a constancy of working power, a single affirmation must be made about the so-called attractive and repulsive forces of matter, namely, they must vary only with the spaces through which they work. Any other law of variation would overturn the true doctrine of conservation. As the foundation of the doctrine, then, science does not affirm a single unitary power, but an indefinite manifold of elements in the most complex relations of action and reaction. How such action is possible the scientist does not pretend to know; he simply accepts the fact with its discovered laws, and says that if we are allowed to make certain assumptions about the elements, then the energy of the system is a constant quantity. But what is energy in the scientific sense? It has two factors: (1) any attraction or repulsion, or other force, which can initiate motion; and (2) a free space in which this motion can take place. If a stone lie on the earth, it has no energy with reference to gravitation, although the attraction between it and the

* Tyndall's "Fragments of Science," paper on Constitution of Nature.

earth is then at a maximum. Two chemical elements, also, have no chemical energy when once they have united; yet their attractive grip on each other is more than gigantic. But let the stone be raised from the earth, or the chemical elements be wrenched apart, so that motion can take place; then energy becomes possible. Hence, there can be no energy without both moving force and space in which to move. But this energy, which is said to be constant, turns out to be double. The scientist splits it into actual and potential energy, or sometimes kinetic and potential energy. Kinetic energy is the power a moving body has of doing work; and in strictness the name of energy belongs only to this form. Potential energy is the possibility of kinetic energy. Thus our stone at any point above the earth's surface has potential energy, because if left free to fall, it would begin to move and thus develop actual energy of motion, or kinetic energy. But the potential energy decreases as the kinetic increases. The energy of a body just beginning to fall would be all potential; its energy at the lowest point of its course would be all kinetic; and at all intermediate points, it would be partly one, and partly the other. Neither of these forms is constant, but their sum is. Hence, the notion of the conservation of energy. The energy, then, of the universe, does not consist merely in the fact that the elements attract and repel, but in this fact with the additional one that they have also spaces to act through. These same elements might be so arranged that, remaining just what they are, the system should be utterly powerless. Such, indeed, is the future

which this law of conservation seems to be preparing for our system. Placing ourselves, then, in the nebulous time, we see that the energy of the universe was then mainly potential, and consisted of the pushing and pulling forces of the elements multiplied into some function of the spaces that separated them. Ever since, that potential energy has been becoming kinetic; and this has been developed by the fall of the atoms through a portion of the space between them. We see, then, what the scientist means by affirming that the energy of the universe is constant. If at any moment we measure the potential and kinetic energies of our system, their sum will be equal to the similar sum obtained from any other measurements at whatever time. Such is the statement of the law; it remains to inquire into its scientific limitations. Unless we do this, the rhetoricians will renew their ravages by interpreting it verbally; and then we shall have another flood of devastating rhetoric. We shall best learn the limitations, by studying the proofs of the doctrine.

The well-known mechanical theory of the conservation of *vis viva*, when extended to molecular motions, gives the general doctrine of conservation. If we assume any finite system, say some huge nebula, and suppose it to fulfill certain conditions, such a system will be dynamically conservative. The conditions are as follows: (1) The system must be free from all external action. (2) The motions of the system must all depend upon the forces of the elements; and these forces must vary only with the spaces through which they act. (3) The atoms must never clash so as to di-

minish motion by any inelastic solidity. When these conditions hold, the conservation of energy follows directly from the third law of motion, or the equality of action and reaction. When they do not hold, energy is not constant. If there be forces which vary with velocity, or with time, or with the mode of aggregation, the formula is not exact. Or if there be agents in the system capable by volition of originating any motion whatever, again the law does not hold. Now all of these suppositions are quite simple, and full as easy to realize in thought as the assumption that the forces shall vary only with the spaces. Indeed, more or less of empty space seems of all grounds for force-variation, the least rational and conceivable. Of course, the facts can be determined only by observation and experience. There seems to be no way of satisfying the third condition except by giving up the extension of the atom altogether, and adopting Boscovich's notion of unextended force-centers.* The collision of inelastic bodies is invariably attended with the loss of energy unless they have a molecular structure, and the molecules fulfill the conditions mentioned. But if the atom be a solid, and not merely a force-center, it is impossible to view it as elastic.

This general theorem of dynamics has been raised into importance by the mechanical theory of heat and the other molecular energies of matter. The discovery of their mechanical nature enables us to trace molar motion into molecular motion, and conversely; and the de-

* See essay by Sir John Herschel on the Origin of Force, in "Familiar Lectures on Scientific Subjects."

termination of their mechanical equivalent enables us to say that the seeming loss of energy in case of molar collision is only apparent, the same amount of energy being reproduced in molecular forms. This discovery is a matter for just pride on the part of physics, but our exaltation must never lead us into making extravagant claims. The doctrine in question is proved only for a theoretical physical system; whether the actual system fulfills the theoretical conditions, must be decided by observation and experiment. Thus far experiment has given a very high degree of probability to the doctrine in the physical realm; but even there all questions are not answered. In particular, electricity and magnetism furnish some troublesome facts. Thus Tait and Thomson question Weber's law of electric currents, although it is in harmony with experience, because it conflicts with the law of conservation. The dogmatism of this procedure is evident; for it is by no means a first truth that natural forces must vary only with the space; indeed, if we ask ourselves what ground for force variation there is in more or less of empty space, we shall find ourselves greatly puzzled to see any. The truth is, it is purely a question of experience, and not of conceivability at all; and if experience point to other laws than those which the doctrine of conservation contemplates, we must admit them, no matter what the theoretical consequences may be. Still we must allow as highly probable, that for physical agents left to themselves, the law is absolute.

Remaining still in the physical realm, it must be further pointed out, that the appearance of simplicity which

the doctrine lends to our physical theories is mostly misleading. When the various activities of the elements are all described as energy, we are apt to fancy that we have reduced the many to one; but, in truth, these forms remain as mysterious as ever. We have discovered that one form of energy can give rise to another according to the measure of its own *vis viva*, but we have no hint of why, or how, one form becomes another. We know that heat has a mechanical equivalent; but heat remains as mysterious and as separate as ever. We know that the other forms of energy also have mechanical equivalents, but still each one remains as peculiar as before. They are all modes of motion, it is said; but what is the nature of these motions? How are they produced and propagated? In what does a heat-motion differ from an electric or magnetic motion? If alike, the effects would be alike; but if different, what is the difference? Some physicists are inclined to assume that the heat-motion is an expansion and contraction of the atom upon itself, and not a vibration. Here is a realm of mystery, and of almost total darkness. In short, why many forms of energy and not one? or why so many and not more? We are shut up to the assumption that these differences must rest upon a complex qualitative nature of the atoms themselves, whereby these diverse manifestations are made possible. Upon this inner mystery the doctrine of conservation throws no light. We have to assume this complex qualitative nature; we cannot construe or deduce it. We must guard ourselves from thinking that grouping various forms of energy under a common name in any

way abolishes their differences. Sir John Herschel has a word on this point which still deserves consideration:—

"Nor (while accepting with all due admiration as approximate truths these great revelations as to the mutual convertibility of these correlatives according to the measure of *vis viva* appropriate to each) shall we advance any nearer to a rational theory of any one of them till it shall be shown with much more distinctness than at present appears in what these molecular movements themselves consist; by what forces (in the dynamic acceptation of the term) they are controlled; in what manner or by what mechanism they are propagated from one body to another, and how their mutual interconversion is effected."*

Whether, in addition to the mechanical agents which the law assumes, there are also vital and voluntary agents whose action is subject to other laws, is a point to be settled by observation. It is a vexatiously common error with semi-scientific speculators to affirm the doctrine of conservation to be absolute, and then to conclude that there can be no vital or spontaneous agents in the system. The fallacy is evident, for it consists in deducing the premises from the conclusion, which, in turn, is true only on the preassumed truth of the premises. Herbert Spencer goes so far in his misunderstanding as to declare the doctrine to be an *a priori* truth. He says it is "deeper than demonstration—deeper even than definite cognition—deep as the very nature of the mind." "Its authority transcends all other whatever; for not only is it given in the constitution of our

* "Familiar Lectures on Scientific Subjects," p. 472.

own consciousness, but it is impossible to imagine a consciousness so constituted as not to give it."* The absurdity is evident of calling that an *a priori* truth which is not true at all except upon certain contingent assumptions. Still more amazing is it, to call that a necessary deliverance of consciousness, which not one consciousness in a thousand can formulate. The truth is, Spencer is here confounding a physical truth with a metaphysical dogma. This appears from the following statement: "Thus by the persistence of force we really mean the persistence of some power which transcends our knowledge and conception. . . . In other words, asserting the persistence of force is but another mode of asserting an unconditioned reality without beginning or end." Different things should be kept apart. Yet Mr. Spencer never seems to have the slightest suspicion that he is not on the high road of science; and in so far we must allow his claim, that the doctrine in question is "deeper than definite cognition," at least on his own part. But old friends often turn up in odd places. Spencer's doctrine of persistence, which he persists in confounding with the physical doctrine of conservation, is identical with Hamilton's doctrine of causation, namely, that the sum of being is changeless, and hence that the many are but flowing states of the one. In fact, Spencer's knowledge of physics is mainly verbal; and hence he understands scientific doctrines by verbal exegesis. And as force may be applied to any thing without manifest absurdity, there is no difficulty in verbally identifying every thing, from

* "First Principles." Chapter on Persistence of Force.

gravitation and sunshine to the force of prejudice or of an illustration. Unfortunately, Spencer is not alone in this verbalism. Speculators have largely made the doctrine of conservation to teach a kind of pantheism, or all-engulfing substantialism. They have been led into this error by the phrases, correlation of forces, and transformation of energy. To an ill-trained mind both phrases are treacherous. We have but to hypostasize force or energy, and think of it as manifesting itself in different forms, and we have the pantheism of Spinoza. And this is the direction which the hybrid philosophical and scientific speculator has taken. Energy is first made substantial, and declared one, and then the easy conclusion is drawn that all things are but manifestations of one omnipresent energy. What appears here as matter appears yonder as mind. What here is sunshine, is yonder life and thought. At bottom all are one, and one is all.

It may be that metaphysical considerations would lead us to a view not unlike this, but it is no deduction from the physical doctrine of conservation. This doctrine is based on the conception of a manifold of elements of a certain kind, each of which is an individual. To guard against this interpretation of the doctrine, we must inquire into the meaning of the transformation of energy.

Energy must always be the energy of something. Physical energy is the energy of the physical elements; and its so-called transformation, while practically allowable, is only a figure of speech. Thus when a moving body puts another in motion and comes to rest itself, we

do not think of the motion of the first as transferred to the second, and for the reason that motion cannot exist without a subject. The motion of the first ceases, that of the second begins; but nothing is transferred or transformed. In like manner energy cannot exist without a subject. But the elements are so related to one another, that they mutually condition one another's action; that is, the activity of one may furnish the conditions of another's activity. In such a case, the activity of the second will be greater or less according as the antecedent activity was greater or less. We may say in general, that the subsequent activity will vary with the *vis viva* of the preceding one. If the resultant activity be not of the same kind as the antecedent, still the same relation of intensity will hold. Speaking loosely, we say in such a case that energy has been transferred and transformed; but in truth no such thing has happened. Every element has acted out of itself; but the conditions of its action have been furnished by antecedent action, and the intensity of the consequent depends upon the *vis viva* of the antecedent. This is all the transference and transformation of energy mean, even in physics. There is no mysterious and ethereal something gliding from one thing to another. No element receives any thing from other elements, except that they furnish the conditions upon which it may manifest its own power of action. No *a priori* reason can be given for such a relation, and still less why the activity of one should disappear in inciting that of another. To be sure the law of conservation would not hold in that case, but this law is purely a contingent one,

With this understanding of the transformation of energy, the question whether thought is not transformed physical energy, is seen to involve mental confusion. Whether simple mental subjects exist can be determined only by psychological analysis; but if they do, the transformation of energy in the case of thought is at least no greater than in the case of the physical elements themselves. The nerves would not supply the mind any thing but the conditions for unfolding its own proper powers; just as when a ball is thrown into the air, it does not receive attractive force from the motion, but is put in a position for manifesting its own inner attraction. In the reaction of body and soul, nothing would pass into the soul, and nothing would come out of it. Whether sensation and perception are attended with any loss of *vis viva* in the brain molecules, is unknown. It may be, that, if we could trace the nervous action, we should find each physical antecedent completely exhausted in the physical consequent, and should get no hint of the thought-series which the physical series summons. It may also be, that physical energy is expended in rousing the soul to react with sensation and thought. A positive decision is impossible and needless. However it may be, there is no transformation, except in the sense that nervous action supplies the occasion upon which the mind develops its own proper activity, for this is all that transformation means in any case. The pretended deduction from the doctrine of conservation, that vital, mental, and social forces are only transformed sunshine, must be at once dismissed as simple moonshine,

The following word by Professor Tait is severe, but just:—

"One herd of ignorant people, with the sole *prestige* of rapidly increasing numbers, and with the adhesion of a few fanatical deserters from the ranks of science, refuse to admit that all the phenomena, even of ordinary dead matter, are strictly and exclusively within the domain of physical science. On the other hand, there is a numerous group, not in the slightest degree entitled to rank as physicists, (though, in general, they assume the proud title of philosophers,) who assert that not merely life, but even volition and consciousness, are merely physical manifestations. These opposite errors, into neither of which is it possible for a genuine scientific man to fall, so long at least as he retains his reason, are easily seen to be very closely allied. They are both to be attributed to that credulity which is characteristic alike of ignorance and of incapacity. Unfortunately there is no cure; the case is hopeless, for great ignorance almost necessarily presumes great incapacity, whether it show itself in the comparatively harmless folly of the spiritualist, or in the pernicious nonsense of the materialist."*

Of course, no one imagines that vital and spontaneous agents, if they exist, are likely to upset all the laws of energy, and put physics to shame. On the contrary, we should expect in a rational system to find them taking all lower forces and energies into their service. "Life," says Balfour Stewart, "is not a bully who swaggers out into the open universe, upsetting the laws

* "Recent Advances in Physical Science," p. 24.

of energy in all directions, but rather a consummate strategist, who, sitting in his secret chamber before his wires, directs the movements of a great army." Aristotle defined life as the cause of form in organisms, and no later definition has equaled his in either simplicity or adequacy. Certainly, if we hold that a living agent is any thing substantial, we shall have to allow that its main function in the body is directive. The same remark is equally true for animal and human volitions; for while our wills must be able to originate some material change, unless we are pure automata, that change mainly consists in changing the direction of physical energies, which are thus guided to the end desired. Whether our wills can thus direct physical forces, is a matter for separate inquiry. The doctrine of conservation is neutral; but, unless appearances are very deceiving, our volitions do count for something in the course of events.

Materialism finds no support from this doctrine; we have next to inquire into its bearings on atheism. From its first announcement, it has been the great demiurge of all atheistic systems. It seemed to teach the possible eternity and self-sufficiency of the physical system, and also to exclude the design-argument. Hence atheists with one accord pounced upon it, and as usual misunderstood it. Of course, it could not be otherwise when one is under obligation to interpret a scientific theory, not by the facts, but by the irreligious use which can be made of it. In opposition, however, to verbal exegesis, an intelligent understanding of the

doctrine shows all such atheistic fumbling to be questionable, if not entirely groundless. Indeed, as our science stands at present, the law of conservation points rather to a finite duration of our system. As far as the meaning of the law is concerned, energy is energy, no matter what its form, while, in fact, energy has many forms. Now the continuance of the universe, as a dynamical agent, does not depend solely upon the fact that all these energies have a constant sum, but also upon the relations of these various forms to one another. And here the surprising fact comes out, that while it is easy to pass from some forms to some others, it is not so easy to pass back. This is pre-eminently the case with heat. Other forms can be entirely transformed into heat, but heat cannot be entirely retransformed into other forms. The descent to Avernus is easy, but the return is difficult, and in part, impossible. There is as much energy as before, but there is no possibility of using it. For heat can do work only when there is an inequality of temperature, as water can do work only when there is a difference of elevation. If water stood at the same level all around the world, there would be no loss of water, but water-power would cease. Heat follows the same law, and is powerless when it has the same level in all bodies. But heat tends constantly to a common level, and thus becomes the great cesspool of energy, out of which there is no known redemption. This fact, that energy tends to sink to lower forms, ending at last as heat, has been called by Sir William Thomson the dissipation of energy; a better term is, the degradation of energy. But

the continuance of the present dynamic system is as dependent on the differentiation of energy as upon its conservation. What, then, does this law of degradation mean? It points to a powerless homogeneity of energy as its goal. A little relief may be found for a time in the wreck and clash of solar systems, until all the matter within the grip of gravitation shall be gathered into one great effete lump. It and the ether may be supposed to have conserved all their energy, but to no purpose, as transformation has become impossible. It would be a relief to our thought if such a system could be buried out of our sight. Why should it remain—useless, inert, effete—a fit inhabitant of chaos and old night?

From this fact of degradation many distinguished physicists have drawn the conclusion that the present system is a temporary one, at least, if the present physical laws hold. Among these may be mentioned Thomson, Tait, Balfour Stewart, Helmholtz, and Clausius. No names rank higher than these in physics. For ourself, we do not wish to insist upon the conclusion; we regard it rather as a pointing than a demonstration, and are not prepared to lay any stress upon it. The fact, therefore, that these men have drawn this conclusion from the law of conservation, is of less use as a positive argument for theism, than as putting a stop to atheistic fumbling with it. At the same time, it must be allowed that no satisfactory answer has yet been made to their argument, although a great many have been attempted. Now, the gist of the argument for the temporary character of the present system is, that

a process of degradation cannot be eternal, and hence that what ends in time must also have a beginning in time. Many of the replies assume that the question is, whether the laws of heat directly prove the system to have had a beginning; and it is said, rightly enough, that they do not. But this is not the question. The claim is, that they point to an end of the dynamic system, and the beginning is an inference from the end. We give one or two quotations:

"It will be seen that in this chapter we have regarded the universe, not as a collection of matter, but rather as an energetic agent—in fact, as a lamp. Now, it has well been pointed by Thomson, that, looked at in this light, the universe is a system that had a beginning, and must have an end, for a process of degradation cannot be eternal. If we could regard the universe as a candle not lit, then it is, perhaps, conceivable to regard it as having always been in existence; but if we regard it rather as a candle that has been lit, we become absolutely certain that it cannot have been burning from eternity, and that a time will come when it will cease to burn."*

"The very fact, therefore, that the large masses of the visible universe are of finite size, is sufficient to assure us that the process cannot have been going on forever; or, in other words, that the visible universe must have had its origin in time; and we may conclude, with equal certainty, that the process will ultimately come to an end. All this is what would take place provided we allow the indestructibility of ordinary matter; but we

* "Conservation of Energy," by Balfour Stewart.

may, perhaps, suppose that the very material of the visible universe will ultimately vanish into the invisible." *

Most of the replies, however, consist in appealing to the unknown. We cannot tell what new laws may appear under new conditions; and hence it is unspeakably rash to conclude that the visible system is temporary. One prominent atheistic writer, in his zeal against the conclusion, questions the absoluteness of the law of conservation, and even the principles of mechanics themselves. His idea of the law seems to be, that it is true so far as it serves atheism, and false for the rest. This standard of truth is most ingenious and instructive. But all of these objections are irrelevant. No one ever dreamed that the doctrine in question admits of absolute demonstration. The proof is based on the assumption that the present mechanical and physical laws shall continue valid. Of course, any one can question this assumption, and suggest ineffable possibilities; and as long as he remembers that he is dealing with his own vagaries and fancies there is no objection to it. We do not know that some awful dragon will not appear to overturn the dead equilibrium, and set nature to work again. Such a suggestion is possible, but it can hardly be called scientific. We must, however, confess our surprise that no speculator has suggested as a way of escape a periodic change from attraction to repulsion; so that when attraction has gathered all matter together, repulsion shall set in and scatter it again, and

* "Unseen Universe," p. 127. See also Tait's "Recent Advances of Physical Science."

thus in eternal oscillation. Of course this would be a mere fancy, but it would not be the first fancy which has been mistaken for science. But as long as we confine ourselves to the known laws of physics and mechanics we make a sorry show in escaping Thomson's conclusion. Some invoke the notion of a space of $n$ dimensions to save the system. Zöllner, the German astronomer, uses this conception to explain the feats of tied conjurors, as a knot cannot really be tied in such a space. What more natural than that he should appeal to it here? Others, again, think that Thomson's theory is due to theological prepossessions. This is true, if the laws of mechanical physics are theological prepossessions. It is further urged that we cannot allow the conclusion, for that would deny the self-sufficiency of the system, and necessitate the notion of miracle. Oddly enough, those who use this argument seem never to suspect that their objection is based, not on science, but on an atheistic prepossession. Whether men like Tait and Thomson, Helmholtz and Clausius, are liable to theological prepossessions the reader must judge for himself; but as a matter of fact, atheistic prepossessions are full as prominent in speculation as theological prepossessions. Of course, the former are far more scientific and respectable. And speaking of prepossessions, it is rather odd that every one may be suspected of them, except the atheist. We allow for prejudice in judging the politician, the statesman, the historian, the philosopher, and the theologian; but we are expected to believe that the atheist, of all men, is absolutely impartial. Hence, also, he claims the largest

right of twitting his opponents with prejudice, bigotry, and general incapacity; while for himself he claims the profoundest insight and the most immaculate mental integrity. There are some things which transcend even a mountain-removing faith, and this is one of them. Being still, for all slips of his, one of Eve's family, the atheist has no *a priori* claim to exemption from the frailties of human nature, and he certainly has no claim in experience. It is a hard saying, but we cannot avoid a secret conviction that if the known laws of mechanical physics pointed to the eternity of the system with half the clearness with which they indicate its temporary character, the theist would not be allowed to lose sight of the fact. Much would be said about the uniformity of nature, and about the folly of appealing to the unknown against the known; but the atheist, like poor Yorick, is commonly "a fellow of infinite jest." The zeal with which Darwin's speculations have been taken up, and the coolness with which the theory in question has been received, are facts not without interest and instruction.

But, as we have said, we do not wish to insist upon the conclusion. It is a pointing of the fundamental known laws of matter. That there are no compensations in the system we affirm not. We adduce the argument, less for its positive than for its negative effect. It is something to have the doctrine rescued from atheism and materialism. And yet it is almost a disappointment to reach a result so different from what the rhetoricians lead us to expect. All those beautiful solutions of philosophic questions vanish, and leave not

a rack behind. We point out, in closing, that if the universe were dynamically conservative, so that transformation could go on endlessly if not interfered with, the atheistic conclusion would still not follow. Leibnitz, as is well known, taught just such a doctrine of conservation, and held, also, that such a universe would be the highest possible proof of creative wisdom. Indeed, both he and Descartes held that it would be derogatory to God to suppose that the system tends to run down. The design-argument is left untouched by it; for the conservation of energy no more explains the teleological aspect of things than does the allied doctrine of the indestructibility of matter. As the latter doctrine is consistent with all kinds of meaningless and chaotic combinations, so the former is consistent with all kinds of meaningless applications of energy. Neither doctrine accounts for form. Why there should be as many forms of energy as exist; why these should be related as they are; why things should work together to produce an orderly system and one replete with marks of intelligence—these questions find no answer in the conservation of energy. Upon the whole, we cannot see that the theist has any reason to be much afraid of this doctrine.

## CHAPTER VI.

### SUBSTANCES AND THEIR INTERACTION.

WHEN discussing the relations of mechanism and teleology, we came upon the claim that the physical system bears no marks of dependence except the traces of design seen in it; and these, it was said, were far from proving such dependence. The latter part of this claim was found to result in utter skepticism; for there is as much proof of mind in nature as in man. In the last chapter we saw that many of the ablest physicists are agreed that the best-known laws of the physical system point to a beginning and an end. We do not care, however, to insist too strongly upon this point, and leave the reader to give it such weight as he chooses. But now we claim, that, apart from the design-argument, and apart from the indications of physics, it is strictly impossible, without insoluble contradiction, to regard a plurality of interacting things as independent. An interacting manifold is impossible without a co-ordinating and unifying one. This argument serves to supplement the design-argument, which does not strictly exclude polytheism. Indeed, if we should set out to prove the unity of God solely from the unity of design in nature, it is not clear that we should succeed. The prominent facts of nature and life agree only too well with the notion of a dual, or

plural, origin of things. We are so accustomed to monotheism, through the teachings of Christianity, that we fail to appreciate the facts which led the old philosophers into dualism. For us any argument which points to mind in nature is monotheistic, as a matter of course. But in strictness this conclusion is, at least, hasty. The world is a battle-field, and though the universal strife is consistent with the unity of God, it would be somewhat difficult to prove that unity, if we had no other facts on which to build. It is well, therefore, to show upon other grounds that the fundamental reality of the universe is one, and that the mechanical system cannot be regarded as ultimate. This brings us to consider the nature of substances and their interaction. We shall deal chiefly with so-called material substance.

The phenomenal world reveals to us incessant change and motion; and the law of causation forces to supplement these facts with the notion of a subject. An act or change, without a subject which acts or changes, is a phrase which cannot be translated into thought. Now these subjects are what we mean by substances; and the question is, how we must conceive them in order to make them the sufficient explanation of phenomena. Substance is often conceived as substratum, and various formal distinctions are made between it and being. It is easy to account for this notion, but, as we shall see, it cannot be allowed. Metaphysically, substance and being are identical; and both denote those real subjects from which change and activity proceed. But while their formal position in thought is plain, their content

lacks definiteness. What content, then, must we put into the notion of substance in order to make it harmonize both with the laws of thought and with the facts which it is to explain? The problem is one of inductive speculation. We hope by criticism to clear up the notion, and make its content more definite.

The spontaneous thinking of men brings forth a system of natural metaphysics; to which belong such notions as cause and effect, matter and force, space and time, etc. But as this system is born of practical life, we should not be surprised at finding many of its definitions and logical junctions open to criticism. Practical thinking is molded by practical needs, and never stops to inquire whether the results are theoretically consistent. It is enough if they serve the purposes of our every-day mental life. And what we should thus expect, we find. The notions of natural metaphysics are always loosely, and often contradictorily, conceived. As specimens of this looseness take the common statement of the law of causation: every thing must have a cause. This statement, taken literally, would deny the law of causation entirely. Or take the current conception of matter and force, according to which matter is at once inert, and the source of all activity—a kind of philosophical mermaid. Or take the doctrine of a past eternity and a future eternity; as if eternity were not necessarily one. Or take the common notion of the relation of the attribute to the thing; according to which the attribute is as external and as indifferent to the thing as a pin is to the pincushion into which it is thrust. Pre-eminent among these notions, which are

full of implicit contradictions, is that of substance. This comes from the double root of the idea. The senses give us many things apparently inert and dead. The rock, the wall, the solid earth, seem inactive, and yet are manifestly real. Hence we conceive of substance as something inert and changeless. This is the root of the substratum conception. But by and by it occurs to us that there are activities in the world; and these must have some subject. Then, without a thought of the contradiction, we ascribe them to the same subjects which we before defined as inert and dead. Thus we see that practical metaphysics are burdened with many implicit contradictions. This fact, indeed, does not furnish a ground for their rejection; but it does lay upon the mind the necessity of attempting their rectification. The great common sense of mankind outlines a system of metaphysics, which speculation can neither improve upon nor ignore; in fact, the true and only function of speculation is to elaborate, rectify, and defend the metaphysics of common sense. But as long as the law of non-contradiction is recognized, this rectification will be necessary; and to perform it will be not only the duty, but the inalienable right, of philosophical speculation. If such rectification should show many assumed principles to be only prejudice and uncritical dogmatism, it will be the place of common sense to accept the results, if the showing be complete. Sound philosophy does not attempt to overawe common sense, but to correct its uncritical mistakes. At the same time, philosophy will not allow common sense dogmatically to settle questions beyond its province.

But as the senses are the great source of error upon this point, the first thing is to throw off their bondage. The general theory of perception shows that external things can be perceived only as they affect us; and in Chapter III we saw that the object is not so much perceived as posited or affirmed. Being or substance, we saw, is primarily a regulative notion in the mind; and its content, when affirmed in objectivity, is not immediately apparent. This is a question for speculation. In addition, the elementary teachings of physics furnish absolute demonstration that this is not a question which can be settled by the eyes in any case. According to those teachings, the inaction of things is only in seeming. Underneath the dead rest which the unaided senses show, science discerns the most complex and constant activity. Every thing, even the dead stone and resting clod, is seen to stand in the most manifold relations of action and reaction to every other thing. Science knows of nothing which just exists, and nothing more. Further, physics makes it plain that things as they appear are not the true subjects of natural activities. Every appearing thing is a function of things which do not appear; and these non-appearing things are the true subjects. Even extension, so far as we experience it, is purely phenomenal, depending upon sundry attractions and repulsions among the elements. If extension be affirmed of the elements themselves, it can only be on the authority of some necessity of thought, real or pretended, and never from experience. Physics further teaches that solidity also is not an ultimate quality of the elements, but is the outcome of

their attractions and repulsions. We often think of the atoms as little cubes or spheres which are very hard, and which are piled up to make visible things, just as bricks are piled up in a heap. But this is the gravest mistake. The connection of the atoms is dynamic, and not that of mere juxtaposition; and if it be allowed that the atoms themselves are solid, it has to be allowed that that absolute solidity never comes in play; for the atoms are not in contact. Hence the only solidity of which we know any thing is based upon a dynamism back of it; and there is no warrant for affirming any other solidity. Thus physics seems bent on overturning all our current ideas of matter, by declaring that all materiality is phenomenal, and has a dynamic basis. But as soon as these elements of physics are grasped, it becomes clear that we can never hope to determine the nature, or definition even, of material substance by reasoning with our eyes. It is purely a question of metaphysics, or of consistent thinking.

In the second place, we observe that every definition of substance must attend to the conditions of the problem. We are looking for the subjects of a group of complex activities, and whatever substances we postulate must be capable of being such subjects. It is not, then, sufficient that the definition be logically consistent; it must be further capable of explaining the facts. Failure to notice this lies at the bottom of the error of the Eleatics, and of the Greek atomists. The Eleatics defined being as excluding all change, all motion, and all manifoldness. The definition is logically consistent; but it is philosophically worthless. For clearly such a

being will not explain the phenomenal world of change and plurality. There was only one alternative: either the definition must be changed, or the phenomenal world must be denied. The Eleatics, who were not wanting in the courage of their opinions, took the latter course, and declared the phenomenal world to be a delusion. The Greek atomists also committed a similar error. They defined their atoms as self-centered and independent. All element of relation was denied. This notion, again, is logically consistent; but they failed to notice that such atoms are worthless for scientific purposes. If truly independent and self-centered, they would be indifferent to one another; and hence quite incapable of explaining the solidarity of the actual world. Not atoms in general, but only inter-acting, inter-dependent atoms, will serve the purposes of science. And so we repeat once more, it is not sufficient that the notion of substance be logically consistent, it must further be such as to fit into and explain the facts.

Two doubts come up just here; the one a prejudice, the other a misapprehension. The former urges that we have no right to attribute force to matter, as matter has always been defined as passive. The reply is, that the physicist is supremely indifferent to prescriptive definitions. He aims to explain phenomena; and if he can do it by a dynamic theory of matter, he will not hesitate to attribute to matter just such active properties as may be necessary for his purpose. Certainly the dynamic theory of matter need not fear, if nothing more weighty than a traditional and arbitrary definition of matter can be urged against it. The misapprehen-

sion consists in charging that the dynamic theory of matter contradicts the law of inertia, which is at least as well established as any other fact of science. This misapprehension arises from ignoring the facts upon which the doctrine of inertia is based, and then analyzing the word inertia. If matter be inert, of course it is a contradiction to call it active; but if we attend to the meaning, and let the dictionary go, this contradiction disappears. Scientifically, the doctrine is that no element spontaneously changes its own state, whether of rest or motion; and further, every element opposes a certain resistance to any external attempt to change its state. It does not deny activity with regard to other elements, but denies spontaneity with regard to itself; and instead of affirming absolute passivity to external action, it affirms a positive reaction and resistance. This is the only conception of inertia which has any scientific value; all others are but vain etymological imaginings. In like manner, the space-filling property both of the elements and of their combinations is at bottom dynamic. It is only as an element has the power to resist and drive back other elements, and thus assert for itself a position and volume in space, that we can talk even of matter as filling space. To call the gigantic force with which each element resists the approach, within certain limits, of any other, a "mere passivity," involves the very depths of bondage to the senses. When closely examined, even the statical phenomena of matter rest on an inner dynamism.

It is clear, then, that the lump notion of substance, which is borrowed from the senses, must be given up;

for physics teaches us that lumpiness is not ultimate. The problem being to find the subject of a group of activities, nothing can be plainer than that we cannot regard that subject as dead inertness. On the contrary, it must be conceived as an individualized force or power, and active through and through. Push our analysis as far as we will, still, in the very deepest depths of metaphysic fog and night, it yet remains clear that only the active will explain action, and that we get no help in understanding action by postulating a hard core of inactive and dead materiality upon which the living activity may sit down and rest. The tyranny of the senses is very strong at this point; and we can escape it only by remembering that this is not a question of eye-sight but of consistency in reasoning. The dead-lump notion of substance has its origin in sense-delusions, and is plainly of no use. If such substances did exist, as doing nothing, they would be mere metaphysical loafers in every scientific system, and there could be no reason for affirming them. For we reason from effects to causes, and where there is no effect, there is no ground for affirming a cause. The only definition of substance which will meet the conditions of the problem is, that substance is an individualized force or power. How a thing is made we do not pretend to know, but when it is made, its most general definition is as we have given it. The notion of real being is impossible without the two factors of power and individuality; and by our definition we mean only that every real thing is an individual unit, and that its essence is power or force. Being without force is nothing; force

without being is also nothing; both must be united in reality. One or the other of these elements is commonly overlooked by speculators. Thus, matter is often spoken of as a function of opposing forces, as attraction and repulsion. This view is utterly untenable, as attraction and repulsion are abstractions from the activity of something which attracts and repels. Again, things are often spoken of as made out of force, as if force existed before reality. In scientific speculations nothing is more common than to hear of "cosmic forces" which play on matter; but we nowhere get any hint as to the subject of these forces. They seem to drift around about half way between being and nothing. We repeat our definition: Substance is individualized force or power.

What a host of objections come up! The first and most natural is this: Substance is not power, but has power. The substance is one thing, its power is quite another. This objection rests, first, upon the possibility of conceiving matter without any power of attraction; and this is mistaken for a proof that matter can be conceived as without power of any kind. It is plain that if this conception were possible it would be equivalent to the denial of matter; as that which can in no way act, can never come into knowledge.

For the rest, the objection is based partly on sense-illusion and partly on mistaking a logical and grammatical distinction for a metaphysical one. The sense-illusion is, that we seem to see things perfectly inactive and yet manifestly real; but the most elementary knowledge of physics serves to dispel this notion.

Further, the distinction between a thing and its power of action is a purely logical one. All of our attributive logical judgments express only subjective distinctions; or rather, they express what the thing itself is in certain relations or from a certain point of view. We say a triangle has three sides; yet a triangle without sides is nothing. We say substance has properties; but a substance without properties is merely a hypostasized nonentity. So we say a thing has power; yet without that power it would not be a thing. If we ask the objector what he means by a thing which has no power, we get no answer. How do we distinguish something from nothing? Solely by the fact that something acts and resists us, and nothing does not. And even if we should grant the distinction, we have to cancel it in the next breath; for either this substance is indifferent to its activity, now assumed to be separable from it, or it is not. If it is indifferent, then the changing activity finds no ground either for its existence or its changes in the substance; in which case the substance becomes a worthless metaphysical ghost. If not indifferent, then it must in some way control this power. But to do so, it must have a power of controlling it. And now arises a difficulty. Either this power of controlling the power is the substance or it is not. In the first case we may as well stop with the first power of action; as a power of controlling a power is no more capable of standing alone than a simple power. But if this second power is not the substance, and demands a third something for its support, we are shut up to an infinite series. In fact, being and power are but

different names for reality from different stand-points. Regarded as the abiding source of activity, we call it being; regarded as the possibility of activity, we call it power. Or, regarded as the subject of various acts, we call it being; regarded as the ground of those acts, we call it power. The name is indifferent. We may call it being if we choose, but the content of the notion must always be an individualized power; we only contradict ourselves when we regard being as a core of dead impassivity. We conclude, then, that though we can never penetrate the mystery of being so as to create any thing, still, after a thing is created, it must be viewed as a power and not as a lump. A power of action in some way is the only assignable difference between something and nothing. This result is valid for all substance, whether spiritual or material. Whatever difference there may be must consist in the nature of the activity, and never in the presence or absence of power. Only absolute philosophical incapacity can find any help in comprehending the possibility of action by postulating a central core of passive materiality; to say nothing of the annihilating self-contradiction of the notion.

But skepticism still remains, and expresses itself as follows: An atom has various forces—a force of gravitation, one of cohesion, one of chemical affinity, etc. Now, it is absurd to speak of any or all of these as constituting the atom. They belong to it, or inhere in it, but can never be thought of as being the atom. We quite agree with this skepticism, but regard it as no objection to our view. For this objection rests entirely

upon a personification of abstractions. An atom is not a composite of independent forces which are held together, like a boy's kite-sticks, by a tack or a string; but, if real at all, it is a single unitary power, which is so related to other powers that now it acts in one way, and now in another. Its activity falls, therefore, in several classes; it attracts, it coheres, it enters into chemical combination. We observe these general classes, and then, misled by a persistent tendency to personification, we attribute them to separate powers in the atoms. Accordingly, it is not the atom which attracts, but the force of gravitation. It is not the atom which coheres, but cohesion itself. It is not the atom which acts chemically; chemical affinity is the great demiurge of the laboratory. In physics, too, heat, electricity, and magnetism are the great actors, and not things in the condition we call heated, electric, or magnetic. One can hardly open a scientific text-book without wondering whether the old scholastics and gnostics have not returned to earth in the guise of modern scientists, so freely do the airiest abstractions parade themselves before us as the most solid realities. Now all this is a mistake. Chemical affinity, cohesion, gravitation, etc., are not agents, but abstractions from certain classes of atomic action. The real agent is the atom; and it does not have a stock of powers concealed within it, so that when it wants to enter into a chemical combination it uses its chemical power, or when it wants to cohere it uses its cohering power. If this were our conception of the atom, Martinus Scribblerus's doctrine of the meat-roasting quality of the spit would

be not one whit more ludicrous. But, in fact, the atom must be conceived as one, as a relatively self-centered power, which reacts against external things in various ways under different conditions; and thus gives rise to the shallow notion of various forces which inhere in the atom like pegs in a board, and which it is equally possible to pull out or stick in. It is the single unitary atom which acts in all its manifestation, just as it is the unitary soul which acts in all the mental life. These scholastic personifications being reduced to their true dimensions, we reaffirm our conclusion that the essence of all reality, whether material or spiritual, is power; and that the presence of power of some kind is the only thing which distinguishes something from nothing. It is not meant that the atom is chemical affinity or cohesion, etc., but only that to manifest itself in these ways it must be essentially forceful. The objection we are considering rests upon the false notion of inherence. We hear of forces "implanted," "imparted," "inherent," etc., as if forces were external to the active subject. We hear of forces which "dwell" in things, as if things were little hollow boxes for forces which sally out upon occasion and perform divers feats. Upon occasion things are spoken of as the "fulcra" of forces, as if forces needed a kind of perch on which to roost. The way in which things are made, in this scheme, seems to be as follows: First, a proper amount of "pure being" is provided. This is absolutely inert, and without any positive quality or determination whatever; but it furnishes a fulcrum for power. All qualities and determinations are next produced by bringing

forces from no one knows where, and sticking them into this indefiniteness. Thereby the being is enabled to do something, and the forces gain a fulcrum. But this process rests entirely upon a hypostasis of abstractions, and a mistake of subjective distinctions for objective fact. It further destroys itself, as it denies its own position, that force cannot exist apart from being. But, in sound philosophy, the so-called forces of a thing are never external to it, but only express the way in which the relatively self-centered power, or subject, reacts against other things. The vulgar notion that a thing can be divided, except in unreal abstraction, into a passive lump which represents the being of the thing and certain active properties, is impossible in philosophy.

We may, however, make the following concession to some current views: It is conceivable that there should be material elements having only a simple force of existence and space-filling, whereby each should assert itself against all others, but without any moving forces. That is, we might conceive of atoms with only a static force, and without any relation to dynamics. This appears to be the current conception among the speculators on this subject. It follows at once that such atoms, though still having force of a kind as their essence, would be quite incapable of accounting for the actual dynamic universe. It would be necessary by the sheer force of the definition, to assume some agent or agents outside of the atoms to account for their changes. In this case, however, it would not be allowed to speak of these external forces as inhering or residing in the atoms, or as in any way belonging to them. The

only tenable conception would be that of an external agent acting upon the atoms, and causing and co-ordinating all their movements. This view is logically possible and may be true; but its logical possibility is not enough to prove that such atoms exist. Moreover, the atheist who seeks to include all phenomena under atomic action, denies the existence of such atoms. His atoms are dynamic as well as static; and unless the conception be shown to contradict the fact, it must be allowed, and the question debated upon this basis. We allow, then, that the dynamic view of matter can be replaced by the static view in the sense explained, and the dynamics of the universe can be accounted for by an extra atomic agent; but as we wish to hear the worst thing which can be said, we decide at present for the dynamic theory, according to which the moving forces of the elements are not external to them. But if we adopt the dynamic notion, we must not mistake the possibility of conceiving merely statical atoms for a proof that the actual atoms possess their power only in an external fashion; on the contrary, that power constitutes the central being of the atom; and its so-called forces are but abstractions from the various reactions of that power against external agents. If, then, any one say that every act must have a subject, we are quite agreed; we affirm the same with all possible emphasis. It is the atom which acts in all atomic activities, and nothing else. If it be further said, that power cannot stand alone, we are agreed again, if by power be meant only the personified abstractions to which we have been objecting. If it be taken in any other

sense, we are so far from admitting that it cannot stand alone, that we rather affirm that nothing but a power can stand alone. We certainly get little help in this respect by postulating a passive inertness, as it is quite impossible to see how such a thing could enable any thing to stand or even to sit. If it be said, that all power must have a source back of itself, we agree once more, if this means that every act implies an agent. If it have any other meaning, we reply that it is a strange blindness which can imagine that any thing but power can be that ultimate source. In truth, we have here that wretched personification of a word again. Active agents are the only realities, and such an agent is an individualized force. It may be indifferently called being, or self-centered power, as one chooses, for these are but different names for the same thing.

Let us, then, adopt the dynamic theory of matter, and see where it leads us. We have seen that the elements must be regarded as active agents, and never as little lumps of passive materiality: but more must be said. The element of relativity in the atoms must next be considered, and we shall find that that element makes it impossible to regard them as independent. A superficial view of things leads to the view that material things are strictly self-centered and changeless, and that their properties inhere in them independently of every other thing: but a scarcely less superficial observation, serves to show that no attribute or quality belongs to a thing absolutely, but only under certain conditions or in connection with other things. A thing

has color only in the light. Water is liquid only at certain temperatures. Weight, one of the ultimate tests of the quantity of matter, depends on the presence of an attracting body, and varies with its distance. Volume is never the same for any two consecutive instants. The activities of matter are even more clearly conditioned. Take the chemical activities of oxygen and hydrogen. Neither can act alone, but only in connection with the other, and under certain definite conditions. Under any other circumstances they cannot act; and hence the chemical activity of each is a function of both, and the disappearance of either would be the disappearance of both as chemical agents. If there were only one kind of element, there would be no chemistry. The ordinary way out of this difficulty is to say: The elements really have chemical forces at all times, but they cannot act until certain conditions are fulfilled. That is, the so-called forces are forceless, that is, are not forces, except at the moment of combination. Of course, every thing must be such that when certain other things act upon it it will manifest the new activities which actually appear; but it no more follows from this fact that it has the power when the conditions are not fulfilled, than it follows that an egg has the power of cackling or crowing because, under appropriate circumstances, such a result may be reached. The simple fact is, that under certain conditions the elements combine; and, of course, they have at that moment the power of combination; but there is no need to stultify ourselves by saying that they have the power at other times, only they cannot use it. What is thus true of the chemical

activities, is equally true of the physical ones. Gravitation, cohesion, repulsion, *et cætera*, are not absolute attributes of any atom, but only of the atoms in relations. We express this result by saying that all atomic activities are conditioned. There is not one activity which can be viewed as belonging absolutely to any element. Any given atom is what it is, and does what it does, because all others are what they are and do what they do. Hence, atomic activities are functions only of the manifold, or of the atoms in mutual relations. This, however, does not say that relations only are real, but it does say that the atoms are real only in relations. This conclusion flows directly from the undoubted fact that all atomic activities are conditioned.

To this it is urged, in rebuttal, that at most only the activities of the atoms depend upon their relations. Their being would remain the same under all changes of activity. This objection is due to sense-delusion, which gives rise to the delusion that being is simply static instead of dynamic. We have implicitly answered it in our criticism of the notion that qualities and activities are external to the thing instead of being the necessary results of the innermost nature of the thing. We content ourselves, therefore, with the following considerations: The every-day notion, that a thing remains unchanged while its activity changes, though allowable in daily life, is metaphysically untenable. The changing activity of any subject must have some ground, and an unchanging, inactive substratum furnishes no foundation whatever. If the subject *a* remains forever unchanged, there is not the shadow of a

reason why its action should change, and still less reason why its action should take one form rather than another. In fact, the activity of any thing is but the external expression of its internal state; and a change of activity is the outward expression of an inward change. Before any thing can happen outside of things, something must happen inside of them. The mechanical system of motions among things is but the spatial expression of a metaphysical system of changes in things. A definite form of action must correspond to a definite state of being; and a change of activity is impossible without a corresponding change of being. If the law of causation is worth any thing it is worth this. Hence we say, that the very essence of a thing is implicated in its activity; that the notion of a changeless substratum must be abandoned, and the very substances of the physical universe must be brought into the circle of change. But the activity of the atoms varies with their relations; and hence the very being or essence of the atoms is implicated in those relations, and varies with them. It may be that these considerations will make it impossible to rest in these atoms as the ultimate facts of the universe; but the results reached rest upon the most undoubted teachings of physical science and the simplest kind of reasoning. The argument may be summed up as follows: In opposition to the theories of matter which are taught by the senses, or which are held by unreflecting common sense, science and philosophy know nothing of mere passivity. On the contrary, they regard all natural phenomena as the result of action of some sort. There are, then, active sub-

jects or an active subject. But that which distinguishes these subjects from non-existence—that which makes them subjects—is just their power of action; so that the essence of being is not static but dynamic. Further, the activity of a thing is never separable in fact from its essence, but is rather the manifestation of its essence, so that both must vary together. Now if we postulate atoms as the subjects of natural activities, we are forced by the facts to postulate them as so interrelated and interdependent that out of these relations, or standing alone, they would be indistinguishable from zero. The atoms, then, must be thought of as conditioned in their very being.

If we are not greatly mistaken, this conclusion will be met, not so much with skepticism, as with dogmatic denial. For has not the indestructibility of matter been demonstrated? and is not substance necessarily unchangeable? If we deny this, the universe has no constant factor; and we return at once to the doctrine of Heraclitus, that all things flow and nothing stands. Here, again, we have partly ignorance and partly dogmatic prejudice. The first mistake is, in confounding the scientific meaning of unchangeable when applied to substance with the etymology of the word. The etymology, indeed, excludes all change of any kind; but the scientific meaning is this: A given subject, $a$, under different conditions $x$, $y$, $z$, may pass into the various states $a_1$, $a_2$, $a_3$, etc.; by reversing these conditions, we may pass from $a_3$ to $a_2$, $a_1$, and finally to $a$ again. Another subject, $b$, has a series peculiar to itself, $b_1$, $b_2$, $b_3$, etc.; $c$ has the series $c_1$, $c_2$, $c_3$, etc. Now the indestruc-

tibility and unchangeability of matter, so far as they have any scientific meaning, do not affirm that the material substance remains unchanged throughout the series; but only the reversibility and numerical equivalence of the series when reversed; for example, oxygen and hydrogen combine to form vapor; vapor condenses into water, and water becomes ice. These are the $a_1$, $a_2$, $a_3$, of our series. By reversing the conditions, we may reverse the series; and obtain precisely the same amount of water, vapor, and gas which previously disappeared, provided always that the conditions which affect weight remain the same. Now practical science is under no obligation to affirm that the substance remains absolutely unchanged in the passage from gas to ice and back again. It is not even under obligation to affirm that the restored gas is the same as that with which the experiment began. There is an equivalent amount as tested by weight, but equivalence and similarity are not identity. Of course, we do not mean to deny that it may be the same gas restored to its former state; we only point out that physics neither knows nor needs to know any thing upon this subject, beyond the fact of reversibility and numerical equivalence under the same conditions. The series, $a$, $a_1$, $a_2$, etc., can be worked either way without loss; this constitutes the indestructibility of matter, so far as it has any scientific meaning. The series, $a$, $a_1$, $a_2$, etc., is a closed one and does not pass into the other equally closed series, $b$, $b_1$, $b_2$, etc., $c$, $c_1$, $c_2$, etc. This constitutes the identity and unchangeability of matter. Within the series which expresses the nature of the thing, every thing is changeable

to its inmost center. It never passes outside of this series, so that every thing could become every other thing; and in this sense only is it unchangeable. Indeed, a thing is simply such a series concreted, or made substantial. It is a flowing formula made real, and not rigid duration.

This conception of substance as changeable within certain limits, is forced upon us by the law of causation, and by every fact of observation. But several objections reappear, and we give them a parting word. It is urged that $a_1$, $a_2$, $a_3$, etc., are only states of $a$; and that the substance remains the same in all its states. To this we reply, that $a_1$, $a_2$, $a_3$, are no more states of $a$, than $a$ is a state of each of these. Each may be taken indifferently as the base. Ice is no more a state of water than water is a state of ice. If it be said that the substance is the same in both; this is true only in the sense that the ice is such that if heated sufficiently it will become water; and conversely water is such that, if cooled sufficiently, it will become ice again. But what is a state? Is it any thing but a result of what the subject is for the time? and can a changing state be thought of as any thing but the outward expression of an inward change? Finally, it is said: You say of the substance, "it changes," and you are constantly speaking of this "it" which abides across all the changes. Now we want to know what this "it" is, which abides. We reply that "it" is the changing thing, and that there is no "abiding" except in the sense explained. How a thing can have different states, we know not; but since the time of the Eleatic

it has been clear that the notion of a strictly changeless thing with changing states is an intolerable contradiction. It must be added, that complete reversibility is true only for material things; indeed, we do not know it to be strictly true there. The changes of the elements leave no traces in their external action, so far as we can discern; but whether they may not leave inward traces, so that the atom has a record of its history within itself, we know not. In the case of the soul there is only a limited possibility of recovering a past state. Here unchangeability consists, not in any changelessness of essence, but solely in the power of memory whereby the soul gathers up its past, and carries it with it as it advances from state to state. It is the same soul at different times only in the sense that the soul at any point contains the ground of its future development, and not in the sense of a metaphysical sameness. If asked what is the "I" which endures, we reply that it is the developing, changing soul. If this is not enough, we can only add that "I" is the personal pronoun of the first person.

We have dwelt upon some points in the preceding paragraphs which are not necesssary to our argument. We have done this to bring the dynamic character of all being more fully into view. We think it possible further to show, that personality only fills out the true notion of being, and reconciles the identity of the Eleatics with the flow of Heraclitus. Change and identity can be combined only in the personal. But we omit this point. We gather up for further use the

following results: If we are to retain the atom in our science, we must cease to regard it as an indifferent lump, secure forever in solid singleness, but must rather postulate it as an active something, or as an individualized force which is so related to every other as to be sensitive to every change throughout the universe. No other conception will satisfy both the facts and the laws of thought. This necessitates a double system: first, a system of spatial changes among the elements, which as dealing with space, time, and motion, may be called the mechanical system; and, second, a system of changes in things which the law of causation forces us to assume, and of which the mechanical system is but the spatial expression. This may be called the metaphysical system. As such, it is the fundamental condition of the mechanical system, and can never be explained by it. Beneath all mechanism there is a universal dynamism. But how is this metaphysical system possible? May we stop with its affirmation, or must we go further? This brings us to the second question concerning the atoms, that of interaction. The atoms are postulated as separate individuals, and yet the universe is one. The solidarity of the physical system is the capital, or rather the basal, fact of science; and yet the agents are viewed as an indefinite plurality of independent things. How can these two facts be reconciled? How can self-dependent agents be brought into mutual relations of dependent action? The atomic notion seems to contain contradictory elements. We regard the atom as self-existent, and as conditioned by others external to itself. We

regard it as self-centered, and as having its properties only as a member of a community. These are contradictory determinations. How can mutually independent things be brought into interaction?

The difficulties of this notion of interaction have led many philosophers to try to eliminate it from philosophy and science. The occasionalism of the Cartesians, and the positivism of Comte, are distinguished attempts of this kind. The former sprang more especially from the theoretical difficulty in understanding the connection of soul and body; and the latter sprang from a conviction of the emptiness of the search after causes in general. According to the former, a change in the body is the occasion of a change in the soul, and conversely; but in no case is either the cause of the other. According to positivism, phenomena follow one another, but without causal connection. Both of these theories are valuable as practical methods of investigation; and practical science should never forsake this stand-point. When we have the order of succession among changes, we have absolutely all that is valuable in practical science; and we should not be able to reap one jot more of practical advantage if we could see through and through phenomena. Science, therefore, ought not to be diverted from practical pursuits by metaphysical inquiries. But while valuable as methods of practical research, they are metaphysically worthless. For in order that changes in one being shall be the occasion of changes in another it must act upon it. If, with the positivists, we say that phenomena only follow one another, we must still allow that if $a$ and $b$ are to be fol-

lowed by $c$, and not by $x$, then $a$ and $b$ must determine the consequent $c$. Without this assumption any thing might be followed by every thing or by nothing; indeed without this assumption each new phenomenon would be a self-creation.

Another most renowned effort to escape the difficulties of interaction is Leibnitz's theory of a pre-established harmony; according to which, no atom, or monad, as he called them, really affects any other ; but all the monads are so constructed with reference to all others, that they shall act harmoniously together yet without any real interaction. There is no logical contradiction in this theory, but when applied to the actual universe, its complexity is so great that no one has ever been able to rest in it for any time. The mind is so bewildered in the attempt to comprehend the possibility of such a harmony, that the theory breaks down through sheer excess of complexity. It also comes into hopeless collision with the fact of freedom, and is essentially fatalistic.

The notion of interaction, then, is necessary in science; and its possibility must be explained. The practical scientist may of course decline the problem, but theory must recognize it. The only attempt at solution which deserves mention, is that which regards the atoms as endowed with sundry forces working between them, and producing manifold effects. This theory is born mainly of the senses, and has only a certain value for the imagination. If we figure these forces as a system of lengthening or shortening lines or threads; or if we think of force as a subtle ether raying out from a point—the im-

agination seems to have a bridge whereby to cross from one to the other. But when we come to take this theory in earnest, it appears at once as an imaginative makeshift which cannot be realized in thought. In the first place, we have seen that these forces are only hypostasized abstractions in any case. Observe now the exact nature of the problem. The fact of interaction, when reduced to its lowest terms, is this: When $a$ changes $b$, $c$, $d$, etc., all change in definite order and degree; or any change in one involves a change in all. To explain this, the scientist says that forces pass from $a$ to the others and produce the effect. But this notion of a *causa transiens* represents at bottom a mental void rather than a thought. To explain any thing, it must tell us what this is which goes over and produces an effect. To say that action, or an influence, goes over, is only to restate the problem in another form; for an action or an influence is not any thing which can float about in the void without a subject. We must keep constantly in mind that this is not a question of observation in any way, but only of consistent thinking. No one ever saw any influences passing and repassing. All that can ever be seen is, that mutual changes take place. Now we can think nothing under this notion of a passing influence unless we suppose the influence to be a real thing. But this supposition is doubly untenable. (1) If we suppose that an atom is constantly throwing off things, $x$, by which it affects other things, the difficult and delicate question arises: whence has the atom its infinite store of ammunition? (2) If this question were satisfactorily answered, the question remains where it was before.

Suppose that $a$ throws off $x^s$, and that these finally reach the neighborhood of $b$, why should $b$, in consequence of this fact, take on quite new properties? If $b$ and $a$ are independent, why should they not be as indifferent when side by side as when separated by empty space. Contiguity in space helps the imagination, but not the understanding. Not action at a distance, but interaction at all between independent things, is what the reason finds so difficult.

We have all heard much of forces which play between things; but this conception is only an hypothesis to explain certain facts. Its value for the imagination, and hence its practical admissibility, we do not deny. But when taken in earnest, we find it quite impossible to think it through. We only involve ourselves in the gravest difficulties, and gain no insight after all. Still worse is the notion that one thing transfers its condition to another, and thus acts upon it. No condition can exist independently, hence cannot be transferred. The pretended transference rests upon this fact: a body, $a$, in the condition $m$, may become in some as yet unexplained way the cause why another body, $b$, may take on the same condition; as where a magnet induces magnetism. But nothing passes over; no magnetic states hang for a time between $a$ and $b$, and, finally, enter into $b$; but $a$, by its action on $b$, however brought about, enables $b$ to become magnetic. This notion of a transferred condition is further untenable because the great mass of interaction does not imply that $a$ produces a similar condition in $b$, but only a change of some kind. There is in no case a transference of any thing,

but each develops the new condition out of itself, upon occasion of the other's action. The proof is, that any other conception breaks down upon analysis, and turns out to be a phrase which cannot be put into thought. When one man speaks to another, no ideas pass from one to the other, but upon occasion each constructs in himself the proper thoughts and feelings.

Ultimate facts may be mysterious, but they must never contain contradictions; hence while the interaction of things may be mysterious, we may never admit contradiction into it. Observe once more the fact to be explained. Physical science forces upon us the relativity and conditioned character of the atoms, even in their very being. Its most fundamental fact is, that every atom is sensitive to the changes in every other, and conducts itself accordingly. But there is a distinct contradiction in declaring, not atoms in general, but atoms of this kind, to be self-centered and independent. To declare in one breath that every atom must vary with every other, and yet has its sufficient ground in itself, is to fly in the face of all logic. We have seen that every attempt to fill up the gap between two independent things by any passage of influences or forces is utterly fruitless, and even meaningless. There is only one course left: we cannot deny the relativity of the atoms; we must, therefore, deny that they have their reason and ground in themselves, and reduce them to constant dependence on some one being who embraces them all in the unity of its existence—something as the mind embraces all its thoughts, feelings, and other mental states, in the unity of its existence. In

this way only is it possible to remove, not the mystery of interaction, but the contradiction of the notion. The infinite may freely posit the finite, and may, with equal freedom, posit an interaction between itself and the finite, but all interaction between mutually independent beings is impossible in thought, and hence unaffirmable in fact, except through some ultimate being who embraces them all in the unity of itself. Below all mechanism, and all plurality, there must be an all-embracing one. The proof is, that clear thinking finds any other conception irreconcilable with the facts of nature and the laws of thought. This is the conclusion to which all the great thinkers of the world have come, without exception. If thoughtless believers in the five senses are bewildered by it, they must remember, (1) that this is not a question of observation, but of consistent reasoning; and, (2) that this conclusion is not a whit more metaphysical than the atomic theory itself. Both views claim to be inferences from the phenomena. The justice of the inference must be decided by each for himself.

The demands we have made upon the atoms thus far are purely formal, and result at once from the attempt to think of them as the subjects of natural activities. We have said nothing of the subjective side of atomic action. Our own action, which is all that we immediately know, is conditioned by consciousness and a sense of effort. But we cannot say that all action must be so conditioned. Still, if we are to think of the atoms as acting, we must allow their action to be conditioned by inner states of some sort; and we must either content

ourselves with affirming an inner ground, without attempting to conceive it, or we must assimilate those inner states to our own sense of conscious effort. We merely mention the point, without offering any opinion upon atomic psychology.

Now see the point to which we have come. The atheist rested his denial, not on the absence of adaptation and harmony in things, but on the possible independence of the atoms, and he claimed that their dependence cannot be proved. In opposition, we found that his no-design argument was essential skepticism, and was, besides, self-destructive. Now we find the undoubted facts concerning them to be such, that the atoms which science must postulate if it will explain the facts, cannot be conceived as self-existent. Allowing the dynamic theory of matter, we can do nothing with the atoms without assuming a unitary and spontaneous ground which embraces and determines them all. And now the various teleological arguments come back with increased force. The possibility of science depends upon an objective reason, and a universal adaptation of part to part. The teleological view is the only one which satisfies the human mind, and the mechanical objections turn out to be quite irrelevant. Now what shall we say of this power which produces and maintains all things according to the laws of reason? Is it rational? Is it conscious intelligence? Nay rather, is it not the highest reason and the unconditioned intelligence? It is possible to deny it still, and to maintain that this power does not know what it

is doing, and hits upon all these harmonies, no one knows how. But this is not reason; it is volition, and is not amenable to argument. If we hold the atomic theory, the only conception which can offer any reasons for itself is, that the physical mechanism depends upon a free and rational creator. Thus we supplement the design-argument, and escape its polytheistic difficulties by studying, not the adaptations of things, but a much simpler and more unquestioned fact, the interaction of things. Our method has been critical and dialectic. We set off with the formal conception of being, or substance, as the subject of activities and changes, and we found that this simple conception led, by the simplest kind of reasoning, to the conclusion that all finite things must depend upon an infinite being. And the order of nature is utterly opaque without conceiving this being as intelligent.

But our doctrine of the atoms hints at another conception of nature, according to which the atoms appear, not as substantial things, but only as modes of the activity of this all-embracing power. As such they are convenient practical fictions, but without external reality. This, too, is a possible and consistent conception. Our aim hitherto has not been to prove that atoms exist, but only to determine the way in which we must think them, if we assume them to exist. We have marked out the formal conditions which they must fulfill if they are to be adequate to the facts. But there is no proof that atoms exist, and all the facts upon which the theory is based are capable of other explanations. The capital fact upon which the theory is found-

ed is, that the agent or agents which produce material phenomena work from points outward, and not continuously throughout the mass. Now shall we locate a separate subject at each of these points from which activity proceeds? or shall we regard these discrete points as the places where one universal agent acts or manifests itself in producing material phenomena? The first is the atomic view. The second is the view which is daily becoming more common, and which represents nature as the product of a constant and orderly activity on the part of one infinite and omnipresent being. Neither view violates any law of thought, as both provide a subject for all activities. Both views make science possible, as the chief value of science consists in getting the law of phenomena, rather than in any insight into essences. It is doubtful if a decisive solution can be reached upon this point. The practical scientist will generally incline, from custom, to the reality of the atoms, while the theoretical speculator will commonly prefer to make matter a form of the infinite's activity. The atomic system cannot be worked without the omnipresent and ceaseless action of the infinite; and it seems simpler, therefore, and in every way more satisfactory, to resolve the physical system at once into the immediate activity of the infinite. The tendency to some such view is more patent in irreligious than in religious quarters. What has been materialism is rapidly passing into pantheism, and many of the evolutionists build expressly on the conception of one all-embracing force. In scientific speculations, we find the atomic and pantheistic view side by side in the same work;

and the author shifts from one to the other without any suspicion of the change of base. Accordingly, we find matter conceived of as a collection of atoms, and also as a mysterious unity. The pantheistic view, then, is possible; and this possibility brings up a new series of dangers. We have seen that the atomic theory cannot be held atheistically; but have we not, at the same time, dissolved the theory in pantheism? And this, though theoretically the antipodes of atheism, is practically the same thing. We shall see in the next chapter.

## CHAPTER VII.

### THEISM AND PANTHEISM.

OUR argument hitherto has been on the basis of the atomic theory, and we have seen that the atoms cannot be regarded as independent. Along with this conclusion has arisen a doubt of their reality, for there is no sufficient proof of their existence. The question is raised, whether a single unitary agent, whose activity follows certain laws, be not a better explanation of nature. The defenders of this view divide into two schools: (1) idealists with regard to nature; and (2) thorough-going pantheists. For the first class there are created spirits and the uncreated spirit; and besides these there is no other. The whole material world is but a divine energizing under the forms of space and time. For the second class there is the one uncreated substance, and nothing else. This substance assumes various modes, but remains all and in all. With the first view we have no debate. We regard the question as incapable of decisive solution, though we think the probabilities all point to this alternative: either the atoms must be endowed with an inner life, after the fashion of Leibnitz's monads, or else they must be resolved into flowing products of the one infinite agent. The thorough-going pantheistic view, which resolves all things, matter and spirit alike, into unsubstantial

modes of the infinite, without proper power and personality, seems to us a most poverty-stricken view. The infinite chokes up the universe, and instead of producing a universe of living spirits to rejoice in its fullness and life, it can do nothing better than repeat itself to itself in a dreary, stupid, meaningless round of unfolding and infolding. Whatever of poetry there may be in pantheism lies entirely in idealism, and not in pantheism proper. The former view removes the hard angularity of mechanism, and brings the created and uncreated spirit in immediate communion. The latter view we cannot but regard as uninspiring and excessively dreary. We believe that examination will show it to be equally obnoxious to philosophical criticism.

It has always been a favorite device of pantheistic reasoners, and especially of the later German pantheists, to boast of the great philosophical superiority of pantheism over all other systems. Atheism is regarded as antiquated, and theism as anthropomorphic and superstitious. Nevertheless, pantheism has always been in unstable equilibrium over against atheism. The problem here is, to determine the relations of the finite and infinite, and pantheism has always tended to reduce the infinite to the sum of the finite, which is simple atheism. Nor does it appear to any greater advantage on the score of anthropomorphism and superstition. On the contrary, we shall find it perpetrating the vilest anthropomorphisms and the most abject superstitions. As to its arguments, we shall find them to be mainly a play on words, so that strict pantheism might not improperly be styled a disease of lan-

guage. We consider its theory, (1) of the infinite, and (2) of the finite.

But to guard ourselves against logical jugglery, we must first ask what we mean by the infinite and the finite. A little definition of these terms would have saved philosophy great disgrace. We experience ourselves as conditioned by something not ourselves. Phenomena also appear as determined and dependent. We call ourselves and these phenomena, therefore, finite and dependent. But the momentum of thought carries us over to the affirmation of some being which limits and determines us and the phenomenal world; and this being we call unlimited and independent. Now this being is not infinite in the sense of being the all; for we expressly recognize the finite in order to affirm the infinite. Great glory has been won by philosophical sophists by defining the infinite to be the all. In this way many disheartening puzzles have been invented. For example, how can the finite and the infinite co-exist, since the all must be all-embracing? How can evil be excluded from the infinite without canceling its infinity? How can folly and impotence be denied to the infinite? These are possible modes of existence, and the infinite must include all modes. How can the infinite be known? for to know is to distinguish, and this is to limit. How can the infinite be positive? for the positive is definite and determined, and hence limited. The infinite, then, is the void, the negation, the non-existent, the unknowable. These and many other equally mortifying sophisms rest upon the attempt to define the infinite by the etymology of the word, instead of attending to its psy-

chological genesis and content. But, as we pointed out in the first chapter, the true infinite is not the all, but the self-dependent source of the finite. As such it is the most positive of beings. It is both distinct from the finite, and related to it. It is not absolute in the sense of being out of relation to other things, for we have expressly assumed it in causal relation to the finite. It is absolute only in the sense that it alone is self-sufficient, and that all the relations between it and the finite are posited by itself, and are not restrictions imposed from without. The terms infinite, independent, and absolute, have all the same meaning as applied to this being; and the terms finite, relative, and dependent, have all the same meaning as applied to things. Care must be taken to keep the psychological content of these terms in mind, in order to guard against interpreting them by their etymologies.

The infinite, then, in sound philosophy, is not the all, but the independent being on whom the finite depends. If it should turn out to be the all, it would not be by the force of definition, but because the known facts about the finite force us to deny the substantiality of the finite, and reduce it to a mode of the infinite activity.

To return to the pantheistic theory of the infinite, we inquire: Has the infinite consciousness and intelligence? The pantheists generally deny this on two grounds: (1) That intelligence and consciousness are not needed to explain the phenomena; and (2) That these terms involve contradiction when applied to the infinite. The argument on the first point is something like the mechanical objections to teleology, except that instead of

mechanism, the pantheist speaks of automatism. Mechanism is an impossible notion where there is not a spatial aggregation of discrete parts; and of course it cannot be applied to the one. Herbert Spencer does attempt to apply mechanical laws to the "fundamental reality;" but the entire argument assumes an original plurality in the one, and almost every-where assumes the atomic theory. Mechanism, therefore, must be replaced by an inner automatism whereby the infinite necessarily brings forth the present order; and that, too, apart from any original conscious intelligence or purpose. The infinite comes to consciousness only in man; apart from man, the infinite is blind necessity, and such necessity is the first fact of the universe. Intelligent spontaneity nowhere exists.

Considered simply as an hypothesis, which best explains the facts—a conscious and free intelligence, or a blind, automatic power? If we deny the atomic theory, the facts upon which the atomic theory is based still remain; namely, the activity of some agent at myriads of discrete points. The pantheist denies that there is an individual agent at each of these points; but claims that it is the same agent which acts in all. Let us grant it; and still we have the discrete activities for explanation. Now each one of these activities is so related to every one of an infinite number of others, that a change in any one necessitates a change in all the rest; and each one is determined constantly with reference to all the rest. This harmonious adjustment of the activity in any one place to the infinite other activities in infinite other places is a fact which

pantheism has to explain. Apart from any consideration of design in the organic world, the elementary facts of physics are a tremendous problem for the pantheist. The pretense that some automatic necessity forces the infinite to act at an infinity of discrete points, and to act at each with perfect adaptation to all the rest; and further, so to combine these discrete activities that myriad products should arise all luminous with intelligence and purpose, while all the time this power does not know what it is doing—is to abandon all rationality, and take refuge in arbitrary volition and caprice. The only analogy which can ever be offered in support of this astounding article of faith, is that of instinct. It is said that in instinct we see agents working with consummate intelligence, yet without conscious purpose; and we may well conceive the infinite ground of things as an instinctive power, unconsciously realizing the highest ends. This doctrine has drifted about in human thought since the earliest times. It appears especially in the teachings of some of the Stoics; and has lately made a new appearance in Hartmann's "Philosophy of the Unconscious." This theory attempts to mediate between the mechanical and teleological views of nature; and, like all compromises, it satisfies neither party. It will never be popular with working scientists, as it furnishes no stand-point for mechanics. It will never find favor with theists, as its unconscious reason differs in nothing from ordinary atheism. The doctrine is also barely intelligible in what it affirms, as the phrase, "unconscious intelligence," is only saved from being self-contradictory by giving to intelligence a meaning quite

out of the common. It is in any case much easier to use the phrase than to understand any thing by it. In every-day speech intelligence is a power of knowing; and an unconscious intelligence would only mean a power of knowing which cannot know. To ascribe intelligence and reason to a being, and withhold consciousness, the most essential factor of both, will appear to most minds as a highly irrational procedure. Again, the objection assumes a knowledge of what instinct is, whereas, it is one of the darkest and most confused notions of natural science. In truth, it is a kind of scientific limbo, into which all the dark problems of animal psychology are thrust; so that explanation by instinct is simply an abandonment of the problem. If, on the other hand, instinct finds a full explanation in the law of heredity, as all evolutionists teach, the impropriety of applying this notion to the infinite is evident; for that would make the infinite itself a product of evolution. Finally, which is the more rational hypothesis—the blind instinct, which is in sad need of definition, to say nothing of explanation, or the intelligent creator? Certainly the pantheist who holds instinct to be a better origin of the order of nature than conscious reason, has little warrant for boasting against any irrationality which superstition ever invented. He is the true heretic, the snatcher of what his will, rather than his reason, dictates. In addition to these objections, drawn from the side of the facts, we have our previous conclusion drawn from the needs of scientific theory, that science must assume that the basal factor of the universe is intelligent.

But the chief difficulty of this form of pantheism is, that it teaches a temporal development of the infinite. By its position as the source and cause of all dependent being, and of all reason and knowledge, the infinite can never transcend itself without contradiction, and can never receive any thing from without. As independent and unconditioned, it must always be equal to itself. In its nature potentiality must be actuality. Still, the pantheism with which we are dealing teaches that the infinite itself grows to consciousness, knowledge, etc.; and has not advanced very far yet, although it has had from everlasting to work in. Further, these conscious developments of the infinite are in very unstable equilibrium, and tend constantly to fall back into the unconscious and irrational. Thus an element of weakness and imperfection is introduced into that which, by its position, is the perfect and complete. Thus, also, the infinite is made subject to the law of time, which is essentially the law of the dependent and conditioned. Against both procedures reason protest with all its might. When the theist regards the first cause as absolutely free and wise and good, and as dwelling in the unapproachable light of perfect holiness and wisdom, the pantheist protests against the anthropomorphic degradation. We look, therefore, for some transcendent glory in his theory of the infinite; and it turns out to be this beggarly notion of a developing god, who, when he does his best, can reach no higher consciousness and knowledge than those of imperfect men. The pantheist twits the theist with making God imperfect; and we turn to his own worship only to find him adoring the

most abject superstition. When the theist urges that God is infinitely holy and wise and good, the pantheist charges that this is anthropomorphism; but when we look to see how he himself escapes from it, we find him committing the vilest anthropomorphism by declaring our narrow, limited, and often evil, mental life the summit of a divine development. The god of this type of pantheist is simply the deification of all the imperfections and limitations of men. It is hardly becoming, we think, for the disciples of this school to rail even at the abjectness of fetichism; indeed, fetichism and devil-worship are only two forms in which his deity worships himself. The pantheist further makes much of the charge that the God of theism can never be perfect, and then comments on his own notions of perfection by showing us a blind god which has striven from all eternity to become something, and has at last got as high as a man. This is delicious criticism on the part of a pantheist. No class of thinkers have ever been so loud in asserting their own power; and none have ever fallen so low. We hold in opposition to these fetichisms that only the finite and dependent can be subject to a law of successive development. The self-depend ent, by its definition, contains the ground of all its determinations in itself, and can never be subjected to any law of development without self-contradiction. It is the source of law, not its subject. It founds necessity, instead of being ruled by it. Hence the infinite, or the independent, must always be regarded as the highest term of the universe in every respect. It is the complete and perfect fullness of life, power, wisdom, and

goodness, of which the highest finite is but the imperfect image.

The pantheist has been betrayed into these philosophical and religious fetichisms by an old logical saw and a pure abstraction. The saw is, that all determination is negation, and hence limitation. To be something is not to be something else. Hence the infinite, which is the all, excludes all determination. Only on condition of being nothing in particular can it be every thing in general. The infinite, therefore, is pure being, without difference and without determination. We shall examine hereafter the saw in question; for the present we point out that this argument applies only to the etymological infinite, and not the real infinite. The infinite with which philosophy has to deal, is neither the sum of things nor the "being" which is supposed to be common to them all. It is the being upon which the finite depends; and as such, it is the most determined of beings. Whatever is, must be something, and must have definite powers or attributes; and whatever has no definite attributes of any kind, is simply and solely nothing. The strictly indefinite is the void. This is as true for the infinite as for the finite. Only the definite can exist and act. This "pure being" which plays such a part in pantheistic systems is objectively nothing, and subjectively it is only the last term of a self-destroying abstraction. The pantheist takes this blank nothingness, and then figures qualities as stuck into it in some way, or rather figures this pure being as giving itself determinations. This intolerable hypostasis of an empty logical notion, with the added

absurdity of its action, is then paraded as the development of the infinite and the method of creation. This form of the pantheistic argument vanishes at once when we remember that pure being is nothing, and that the philosophical infinite is not the all. We conclude, therefore, that in any theory the infinite must be regarded as the perfect and complete, beyond all law of development and forever equal to itself.

This brings to the second objection, that we have joined together contradictory terms in ascribing intelligence and consciousness to the infinite. We have partly anticipated this objection, and add the following considerations. The claim that intelligence is a limitation, is based on the doctrine that all determination is negation. This doctrine is only true in disjunctive judgments. If *a* must be either *b* or *c*, then to affirm *b* is to deny *c*. But such disjunction only applies to the members of a genus which consists of several species. Elsewhere the doctrine in question is utterly false. The affirmation of *a* neither affirms nor denies *b*, *c*, or any other positive attribute; it only excludes non-a, which, as a negative attribute, is nothing. An essential quality or power, like intelligence, is not a limitation, and it excludes nothing but non-intelligence. The power to know is not a weakness, but a power; and it excludes nothing but the lack of such a power. Infinite wisdom is compatible with infinite goodness, and with an infinity of other positive attributes. No one would pretend that a human being would be more perfect if he lost his intelligence. Human perfection lies altogether, not

in escaping from intelligence, but in escaping from its limits. The discursive reason, indeed, is fettered by limitations; but the essence of intelligence does not consist in methods, but in rational insight. In fact, the development of human intelligence is always away from discursive processes, and toward immediate intuition. The great mathematician is not the man who must reach his conclusions by tedious discursive reasoning, but he who lightens at once to them. It is entirely conceivable that there should be an intuitive intelligence which should not need to reason, but which should immediately apprehend all truth. Such is the idea which theists have of the divine intelligence. It is the absolute intuition of all reality and of all truth. To call such a power a limitation and imperfection involves the very depths of mental confusion. Moreover, if it be an imperfection to have this power, would it be any better not to have it? Is the intelligent lower than the unintelligent? The only escape here is to deny that intelligence and non-intelligence form a complete disjunction; and hold that besides these, there is a third something which is neither. The difficulty with this doctrine is, that while it pretends to say something, it really says nothing. What this third something is, there is no telling. It is a pure blank in thought, and there never can be any rational ground for affirming it in external fact. Those who defend it commonly justtify themselves by saying that the limits of thought are not the limits of being, and, hence, there may well be orders of existence of which we can at present form no conception. Of all misunderstandings of the functions

of philosophy, this is, without doubt, one of the worst. The aim of philosophy is not to speculate on possibilities, but to explain facts. The inner and outer world offer a great body of phenomena for which we are seeking an explanation. All causes of which we can form any conception fall under the head of intelligent or non-intelligent. If, then, the world is to be explained, it must be by one of these two classes; for it is no explanation of a thing to refer it to a phrase under which nothing can be thought. Theism explains the visible order by referring it to an intelligent cause. Atheism explains it by non-intelligent causes. Both views are intelligible; and there can be no doubt of the adequacy of the theistic explanation. But it is no explanation to refer the world to something which is a pure blank in thought. Moreover, there is no need of it because of the admitted adequacy of the theistic theory. We allow, then, the speculator to vapor at pleasure about the possibilities of being, and to coin phrases which represent sounds rather than thoughts; but we will not allow him to forget that in the present case the problem is to explain a definite set of facts; and we point out to him that there is some difference between coining a phrase and offering a true explanation. The hypothesis of the third something does not fulfill the first duty of a theory—that of being intelligible.

But it is further urged, that all consciousness, and hence all intelligence, involves a distinction of subject and object; and, therefore, the infinite cannot be conceived as conscious without positing something of which it is conscious, thereby annulling once more its infinity.

The infinite of the speculators must have a sorry time. They will not allow it to know itself or any thing else, for fear of damaging its infinity; and yet it seems, that to deny it a power of knowing must be equally fatal. Their assertion is supported by a certain amount of misread psychology and an appeal to that metaphysical abortion, the etymological infinite. The only point which calls for attention is the psychology of consciousness. Not even in man does consciousness involve a distinction of subject and object in the sense of two distinct things. Self-consciousness involves only the distinction of thinker and thought, and never of self and not-self. Moreover, there are two factors in human self-knowledge: (1) a direct feeling of self; and (2) a conception of self, or of the properties and powers of self. This conception of self is developed; but the feeling of self is present from the beginning. The child has little or no conception of itself, but it has the liveliest experience of itself. This experience of self is quite independent of all antitheses of subject and object, and is underived. But allowing all that can be claimed for the development of our self-consciousness, it does not lie in the notion of self-consciousness that it must be developed. An eternal self is metaphysically as possible as an eternal not-self. To say that because our self-consciousness is developed all self-consciousness must be developed, is just as rational as to say that all being must have a beginning because we have. It is to transfer to the independent all the limitations of the finite, which is the very thing the pantheist claims to abhor. It is said of some free-thinkers with regard

to Christianity, that they are always on the point of setting up a Buddhist prayer-mill, or hanging up a fetich. It is certain that the contemners of anthropomorphism have an irresistible tendency to anthropomorphic idolatry. Now see what this affirmation of consciousness and personality on the part of the infinite means. It simply says that the infinite source of all activity, life, and intelligence, exists for itself, and knows what it is thinking and doing; and the astounding claim is made that this is to make it finite, and degrade it into imperfection. To such a pass has philosophy been brought by a mere play on words. Since the time of the elder Fichte, it has been a settled dogma with the majority of philosophers that the infinite cannot be personal without limitation. Nevertheless, we must say with Lotze that full personality is possible only to the infinite. It alone is in full possession and knowledge of itself. We are rather acted upon than actors in many things, and whole departments of our nature are dark to us. Full personality exists only where the nature is transparent to self, and where all the powers are under absolute control. Such personality is not ours; it can belong only to the infinite, while ours is but its faint and imperfect image. When thought is clear, reason will tolerate no other conception of the infinite than that it is the perfection of power, and wisdom, and selfhood.

We have insisted upon design and adaptation in nature. This claim, also, is seized upon by the pantheist as incompatible with the infinity of the infinite. Here is another antinomy, which, according to him, wrecks

our notion of an intelligent creator. This is so extraordinary a charge that it may be well to quote. Mr. J. S. Mill, though not a pantheist, has put this objection as follows:—

"It is not too much to say that every indication of design in the cosmos is so much evidence against the omnipotence of the designer. For what is meant by design? Contrivance—the adaptation of means to an end. But the necessity for contrivance—the need of employing means—is a consequence of the limitation of power. Who would have recourse to means, if, to attain his end, his mere word was sufficient? The very idea of means implies that the means have an efficacy which the direct action of the being who employs them has not. Otherwise, they are not means, but an incumbrance. A man does not use machinery to move his arms. If he did, it could only be when paralysis had deprived him of the power of moving them by volition. But if the employment of contrivance is in itself a sign of limited power, how much more so is the careful and skillful choice of contrivances? Can any wisdom be shown in the selection of means, when the means have no efficacy but what is given them by the will of him who employs them, and when his will could have bestowed the same efficacy on any other means? Wisdom and contrivance are shown in overcoming difficulties, and there is no room for them in a being for whom no difficulties exist. The evidences, therefore, of natural theology distinctly imply that the author of the cosmos worked under limitations; that he was obliged to adapt himself to conditions independent of his will, and to

attain his ends by such arrangements as those conditions admitted of."* Hence, it is concluded, a designing intelligence and infinity, or absoluteness, will not go together.

This argument is so extraordinary in its misconceptions as to suggest that there must be some spell in the design-argument which puts its critics in an abnormal state of mind. No believer in design questions the power of God to produce by simple fiat all finite existence; indeed, that is the way in which he conceives the creation of the elemental realities of things. He spake, and it was done. He commanded, and it stood fast. But the work must have some qualities; and in the arch of being thus sprung by a word, we find harmony and rational relation, the fitting in of part to part, and universal adaptation. The finite work, as such, is limited; but how its rational and purposive character should prove the creator limited is past all finding out. One may claim that the infinite cannot produce a finite creation, but certainly the inner consistency and adaptations of the system cannot be urged in proof of the weakness of the creator. It sounds well to talk of securing ends without means, but the talk is largely meaningless, because the mass of ends either logically imply the means of their realization, or they are certain states or relations of things, and as such imply the things. Suppose happiness is an end; it implies the existence of sensitive beings, and without them is utterly meaningless. Or let knowledge be an end; this end implies the existence of intelligent beings, and

* "Three Essays on Religion," pp. 176, 177.

without them is empty of the slightest significance. Now, most ends in nature are of this class, and the means which realize them are but expressions of what is contained in the notion of the end. Birth cannot be the law of life without logically implying agents of some sort for the realization of the law. Nutrition cannot be the law of the organism without implying some sort of a nutritive apparatus. It is always open to the objector to fall back upon ignorance, and suggest that the means actually adopted are not the best possible; but his claim that any use of ends implies the weakness of the creator overlooks the fact that most ends exist only through means, and that apart from those means they not only do not exist, but have no assignable meaning whatever. When ends are not of this kind, but might be reached in various ways, we are not to think of God as in a difficulty and using certain means to extricate himself, but we are rather to think of the relation of the means to the end as expressing the inner consistency and rationality of the divine activity. But contrivance in this sense of logical consistency and inner harmony of part with part certainly implies no weakness on the part of the creator. This implication could be allowed only if contrivance denoted weakness and puzzle-headedness.

We pass now to the pantheistic doctrine of the finite, and its relation to the infinite. Upon this point there are theories and theories. The vulgar pantheistic notion is, that things are a part of God. This view rests upon the vilest sense-delusion. It applies the notion of

quantity to the infinite one, and conceives that quantity after the analogy of a clay-bank, which can be used indifferently to make many things. Or it conceives of the infinite as an elastic or plastic substance, which can take on many forms. This is the conception which underlies most forms of philosophic evolution. But this notion is merely a picture borrowed from sense-experience. It is the apotheosis of thoughtlessness. Still it is not surprising that a philosophy which is as crude as this, should fancy that it has sounded the secret of the universe, since arrogance commonly varies inversely as insight. Our discussion of being has led us to the conviction that every true subject is an individualized force, to which the idea of divisibility has no application. Every true substance must be conceived as a strict unit, which, as such, excludes all division. We cannot, without annihilating self-contradiction, speak of the one as dividing itself into the many, for thereby we deny that it is the one. It is still worse when we speak of it as remaining the one after the division, for thereby we deny the division. Most pantheistic systems break down at this point. They explain the phenomenal plurality by assuming that the one divides itself into the many — a phrase which can be realized in thought only as we assume that the one was not one, but an aggregate. That the truly one should divide itself into a manifold of things is an impossible conception, a phrase and not a thought. It is as if we should speak of the mathematical unit as producing number by a process of self-diremption. There is no thought which corresponds to the phrase. Moreover, if such a

conception were possible, such division must cancel the one, and the plurality would be all. The result is, that pantheism at this point has always tended toward atheism; and, when it reaches this point, it is atheism. We have seen in the last chapter that an interacting plurality cannot be conceived without a strictly unitary being. The one, then, exists; how shall we account for the many? To speak of the one as dividing itself into the many is self-contradictory. We can only conclude that if a plurality exists, it must be created. It must be external to the one; that is, it is not derived from the one in the sense that the one is any less than before, or that God plus world since creation only equals God before creation. In brief, the notion that the infinite creates by taking a part of himself, and making something of it, is as coarse and gross a conception as ever scandalized philosophy. All emanation theories come under this condemnation. They regard the infinite as a juggler's hat stuffed with all that is to be brought out of it. Thus the unity of the one is again cancelled, and in its place we have merely an aggregate. Creation is the only tenable solution of the problem of the one and the many.

Hereupon the pantheist brings out his Medusa head —from nothing, nothing comes; and looks complacently that the theist should fall down dead at the sight. But if the theist only steadies himself a moment, there will be no difficulty in staring the monster out of countenance. For this wonderful sentence only says that nothing can never produce any thing; it is far enough from saying that something, an active agent, cannot by its causal

efficiency produce something. Now theism does not affirm that nothing produces something; but rather that God, the all-powerful, has caused the world to exist, and has done this in such a way that God is no less after creation than before. This is the only meaning of the doctrine of creation. It denies that the created is in any sense a part of the creator; it is rather the product of his activity. God posits the world, and remains equal to himself. How this is done, is indeed a mystery; but it is no contradiction. But we need not be much concerned at the mystery, so long as every blade of grass, or even the transference of the simplest mechanical motion, contains oceans of riddles for which our profoundest science has not the shadow of a solution. The pantheistic theory, however, which regards the world as a part of God, or as in any way made from the divine essence, or as in any way connected with it except as effect and cause, is saddled with invincible contradictions. It is based upon the coarsest and most untenable notion of substance. It further denies and cancels the unity of the one; and at last, instead of the unitary infinite, it gives us merely the sum of the finite, thus vanishing into atheism.

The same gross conception appears in the common pantheistic expression that finite things are modes of the infinite. The underlying notion here is that of a plastic or elastic substance which can be pressed into various shapes and molds; and this notion, again, rests upon the static conception of being. We strike out this imagination, and the statement takes on this form: The finite is in no intelligible sense a mode of the infinite;

but all finite things are products of the activity of the infinite. The only pantheistic conception which does not involve insuperable contradiction is, that which regards all finite things as having no ground of action whatever in themselves, but as being the products of a constant divine activity. In this case the relation of the finite to the infinite would be like that of our thoughts to the thinking mind. The thought is in no way a part, or a mode, of the thinking subject; it is an act of that subject. At the same time, the thought has no substantiality in itself; but exists only as it is thought. This conception is logically consistent; it remains to inquire whether it fits the facts.

Thus far we have only sought to develop a pantheistic conception of the finite, and its relation to the infinite, which should be formally tenable or self-consistent. That conception turns out to be one which denies the finite all substantiality and all activity, and reduces it to a flowing form of the activity of the infinite. The finite is simply a divine energizing according to certain methods. When we come to apply this theory to the facts of experience, we find that in the case of so-called material things which have no selfhood, there are no strong objections to this view. It all comes to a question of probabilities and of ease of conception. We will restate the alternative mentioned in the beginning of the chapter: Either the elements must be endowed with an inner life, and thus made homogeneous with spirit, though probably on a lower plane than the human spirit; or, they must be re-

garded as forms of the universal activity. Selfhood and freedom are the only marks which can distinguish the finite from the infinite. Neither view could disturb phenomena, or things as they appear; and hence common sense cannot properly be invoked to decide the question. That material elements exist at all, is an hypothesis formed to provide an objective cause for our sensations and for their peculiar syntheses. Allowing them to exist, we have at once to supplement them by another being which conditions and mediates all their activities. If, then, beings are not to be multiplied beyond necessity, and if the simplest hypothesis is the best; then it is plain to us, that the theory of material elements is operose and needless, and should be replaced by the theory that all lifeless existence is simply a form of the activity of the infinite. Indeed, the conception of impersonal existence cannot be distinguished from that of a flowing activity. But when we come to spiritual beings, who have consciousness and personality, the theory fails to fit, except with important modifications. The thoughtless will hastily conclude that we have just as good reason for believing in the substantiality of the elements as in the substantiality of ourselves; but this will only prove that the term thoughtless is rightly applied. We do know that a sufficient cause of the phenomenal world exists; but we do not know, and have nothing like proof, that material elements exist. We do know that we ourselves exist. No one denies an objective reality; but the nature of that reality is entirely a matter of speculation. To decide the question by appeals to sense-perception is

like attacking the Copernican theory on the same basis.

Again, the thoughtless will urge that if nature is resigned to pantheism, there is no reason for withholding the petty realm of the human spirit; but this objection totally misconceives the function of philosophy. It is akin to the claim, often heard, that because mechanical laws explain physical phenomena, they must also explain vital and mental phenomena; or that because necessity rules in the physical world, it must also rule in volition. One must always be on his guard against the imposition of extending a law from one realm into another without independent proof of its validity in that realm. Bear in mind all the while that the duty of every philosophy is to explain the facts of consciousness, and not to explain them away. When this is remembered, the impossibility of absolute pantheism is clearly seen. For the facts of personality, and volition, and individual consciousness, are the most fundamental facts of our mental life. Nothing is more indubitable, nothing is so indubitable, as these facts. How we are persons, how we can act, how we can be conscious, we know not; that we are persons, that we act, and that our volition counts for something in the course of events, we are absolutely sure. One can break down consciousness if he will; but pantheism cannot be built up by denying consciousness. Total skepticism must result from such heroic treatment. Now every pantheistic theory must recognize these facts, and modify itself accordingly. Hence if the pantheist insist that we are unsubstantial products of the divine activity, he must still allow that that

activity is such as to make and leave us persons. If the pantheist insists that God acts in all our willing, we know that we act too. However unsubstantial, then, he may declare the human spirit, it is still something which can act and be acted upon; can think, and feel, and will; but that which can act and be acted upon, is just what we mean by substance. No pantheistic theory can deny these conclusions and remain loyal to the facts or the data of the problem. He may form what theory he chooses of the way in which these facts are possible; they still remain as facts. But the theist claims no more than this. He does not pretend to know how our personality is made; or how our activity is related to the divine activity; or how the finite can have a relative independence over against the infinite: he only insists that our will and consciousness are our own. If the pantheist attempts to get behind these facts, the theist is justly incredulous of his results; but as long as the facts are undisturbed, the theist is indifferent to the theory. If we keep in mind that the aim of philosophy is not to deny the facts, but to explain them without in any way distorting them, we see that any tenable pantheism must leave just those facts which the theist regards as distinguishing the creature from the creator. Thus pantheism, when purged of its anthropomorphisms and philosophical crudeness, and when brought into harmony with the facts, appears not as pantheism, but as idealistic theism. In it all is life. There are no fixed points of dead inertness; but personality and consciousness are every-where. The ineffable tides of the infinite are poured round all, and

flow through all, and upbear all. The vulgar attempt to identify God and the world, which degrades God without exalting the world, must be abandoned as vilely anthropomorphic, unphilosophic, and contradictory; and in its place must be put the conception of the living God and Father of our spirits, who is never far from any one of us.

The only tenable pantheism, we said, reduces to idealistic theism. But as we did not decide absolutely for idealism, no more do we decide absolutely for idealistic theism. We have rather aimed to criticise the pantheistic doctrine so as to show the only form in which it can rationally be held. All theism must teach the immanency of God; so that religiously there is no difference between idealistic theism and immanent theism. It is also a mistake to decide positively where there are not sufficient data for a positive decision.

## CHAPTER VIII.

### RELATION OF GOD TO THE WORLD.

WE have reached the conclusion that all finite existence depends upon a personal and intelligent being. We have next to inquire how we shall think of his relation to the world, and its on-going. What we shall have to say will apply equally to realism and to rational idealism. There is no need, therefore, to decide for either.

The philosophic thought of both England and America has been ruled from time immemorial by the deistic conception of a mechanical world and an outside God. According to this conception, the world was made once for all, and thereafter it was able to take care of itself. To such an extent was this independence of the finite carried, that it seemed to be held that the finite would be undisturbed, even if the infinite should entirely vanish. Accordingly, the theistic argument turned largely on such questions as that of a prime mover, the only recognized use for God being to set the world a-going. On this account, very many still regard a dynamic theory of matter as fraught with atheism. God was not only apart from the world, but it almost seems as if he were to be conceived as spatially external. This deistic theory was simply the apotheosis of the crudest notions of common sense, in itself it belongs to the pre-critical

stage of thought. It is also intelligible as a reaction against the insanities of extreme pantheism; but it is scarcely less mischievous, and is equally obnoxious to criticism. It contains the germs of materialism and theological rationalism. Its rigid mechanism allows no modification except by an irruption from without; and hence the vehement opposition to the supernatural of those who hold this view. Its further assumption, that the system contains all its factors unchanged from the beginning, makes it necessary to regard all outcome as the result of shifting the pieces in the great kaleidoscope. Hence, also, the necessity of regarding life and the soul as but peculiar phases of the ever-shifting constants of the system. The great kaleidoscope rolls, and the pieces assume new combinations, but there is nothing substantial in the products. They are phases only, and pass as the combination changes. No other view can be taken without allowing the introduction of new agents into the system; and this would be an abandonment of its fundamental assumption. In this respect our theology has generally been in advance of our philosophy. With the Bible in his hand, the theologian could hardly help seeing that the natural and supernatural interpenetrate, so that nature is but the manifestation of the supernatural, and the supernatural is but the omnipresent cause of the natural. Still our theology has not entirely escaped the influence of the deistic conception; as is shown by its failure to steadily affirm the doctrine of an immanent God. Even now it is not uncommon to hear miracles and answers to prayer defended on the ground that God made provision for them all

in the original mechanism. Babbage wrote a treatise to show by the aid of his calculating machine that the mechanism of nature might have been so adjusted at the beginning as to produce the wonder at the right time. When the hands pointed the hour the bell struck. The pointers and the bell were kept together by an inner automatism which made mind as predicable as matter. In this way the miracles were provided for, and above all, the laws of nature were preserved. This was esteemed a triumph for the theologians, as it saved them from the reproach of violating natural laws. That the logical outcome of this view is fatalism in no way diminished their satisfaction. In truth, it was only a striking illustration of the ease with which an uncritical habit of thinking is mistaken for a law of thought.

The prominent part played by the deistic notion in scientific speculations need only be mentioned to be recognized. The arguments for evolution and materialism in life and mind are feeble enough when viewed from the side of the facts. The positive evidence gives but the smallest support to the great conclusion; but if we may assume that our system has received no new factors from the beginning, these doctrines follow as a matter of definition. In a given system, which receives no additions and suffers no loss, all phenomena of whatever character must be due to varying combinations of the constant factors. We may be unable to see how the phenomena result, but the conclusion is in no way disturbed, for, by hypothesis, the primal elements are the only things concerned. No amount of breaks in the

genealogical series, and no inability to understand the method of evolution or the development of mind from matter, can have the least weight as an argument so long as this basal assumption is allowed to stand. Unless the opponents of these views have the courage to deny the mechanical self-sufficiency of the system, and to affirm the introduction of new factors into it, their opposition even to the most materialistic form of evolution might as well cease. The importance of this question will best appear from some illustrations.

The nature of life is one of the great battle grounds of materialism. The materialistic, or mechanical, theory is commonly misunderstood. In its best form it does not teach that physics or chemistry can explain life, or that we have any mechanical insight into the origin of life. It only asserts that just as the elements when brought together in certain relations, manifest chemical, magnetic, and other properties, so when brought together in certain other relations, they manifest vital qualities. It may be that they manifest them only in connection with living things, but however manifested, the activities of every organism are but the resultants of the activities of the component elements. The doctrine is often coarsely held as if electricity or chemistry are able to give us some insight into life; but in its best form, it claims only that in any atomic complex the properties depend on the nature of the atoms, which nature, however, may be as mysterious as we please. This is what is meant by the current propositions to include life in the definition of matter. Of course this view assumes, in the atoms, all that afterward appears,

and in one sense explains nothing; but it does, at least, furnish a landing-place for our thought, in that it provides some subject for the organic activities. Formally, at least, the thought is complete. The agents which produce organisms are specified; and, in addition, the thought of any irruption or meddling from without is warded off. The non-mechanical view, on the other hand, is not so clear on this point. Frequently the mechanical view of life is misconceived, as if it were taught that mechanical processes, in the common meaning of the term, could explain life. Moreover, we hear much of vital properties and activities in the body, but we are not told to what subject they belong. To attribute them to the body is mere thoughtlessness, for the body is only an aggregate. Here, then, are activities in the body: what acts? If we say that the elements act, we have not escaped the mechanical theory. If we attribute the vital qualities to the elements, again we have not escaped the mechanical theory. But if there be any thing beyond the elements, what is it? And above all, whence is it? If we say that life acts, we have not simplified the problem, for while the name life is one, the thing is many. The fact is not universal and singular life, but discrete, individual lives, and these often of the most diverse nature. We can escape the mechanical theory only by affirming a separate vital subject for each living thing. But in that case, whence has this swarm of lives their origin? Shall we say that the original vital element has indefinitely reproduced itself? That would make it creative; for we have seen that every true subject must be a unit. Shall we say

that it has re-enforced itself from the unorganic world? So far as such a statement would have any meaning, it would be the very essence of the mechanical theory. Shall we, then, affirm a separate creation for every living thing? These questions express the real difficulty of the non-mechanical doctrine; and it is these objections which make converts to the opposite view, rather than any insight or demonstration which that view can give. It is also plain, that on any theory of a mechanical world and an outside God, the non-mechanical view cannot make headway against these considerations. The holder of this theory is shut up to one of three views: (1) The pre-existence of all organic germs from the beginning; (2) the creation of a vital element for each organism; or (3) that the directive or unifying agent in all organisms is the omnipresent God, who proceeds in each according to his own chosen and orderly methods. The choice is practically between the last two views; and it must be clear that one who has not the courage to choose one of them and maintain it consistently is powerless against the mechanical doctrine. Vacillation on this point gives the victory to mechanism. Mechanism, on the other hand, is not based upon fact and knowledge, but on an assumed metaphysical theory. At bottom, this is a battle of metaphysics.

For the present, we decide for neither of these views, but pass to a more important question. From the earliest times, the origin of the human soul has been a vexed question; and here, too, the deistic conception of an absentee God has had great influence. Only three views are self-consistent: (1) The pre-existence of all

souls; (2) their creation in connection with the organism; and (3) mental phenomena inhere in no substantial subject, but result entirely from material combinations. The doctrine of pre-existence found favor with some of the early Indian and Greek philosophers; and an occasional theologian holds it still; but it involves us in so many gratuitous difficulties that it will never have any general acceptance. Practically, the only theories are materialism and creationism. In unclear thought an attempt is sometimes made to steer between these views, and represent the soul of the child as in some way produced by those of the parents. This view has its origin in the deistic notion; and its outcome is materialism. It is defended only by a large use of vague phrases and half thoughts. It is said, for instance, that there is a law, or a world-order, according to which souls are produced, yet without being created. Unfortunately, a world-order, or a law, is only a conception, and always needs some agent or agents to realize it. In order, then, to make this theory intelligible, we must know what the agents are which realize this order. If it be said, that God has made the elements such that when combined in certain ways mental phenomena result, this is simple materialism. The mind is the unsubstantial outcome of organization. If it be said, that when the elements are combined in certain ways a substantial soul results, this is to allow creation. The only difference between this and creationism proper is, that it does not say what creates. But the notion that the elements, or that the souls of the parents, give off something out of which new souls can be made, is utterly untenable. We are,

then, shut up either to an acceptance of materialism, or we must admit the direct creation of human souls, the doctrine of pre-existence being practically obsolete. But creation cannot be maintained upon any theory which regards God as an absentee, or as any thing but immanent in the natural, as its bond and upholder. Failure to see this lies at the bottom of a great deal of theoretic materialism. The spiritualists have been neither clear nor consistent in their doctrine concerning the origin of souls; and most commonly have adopted a theory of the relation of God and the world, which is essential materialism. Thus the case has gone against them by default, rather than by any force of opposing evidence.

Again, when we take up the question of the evolution of higher from lower forms, and of the organic from the inorganic, we find the grip of the affirmative argument to consist in the deistic theory of an outside and absent God. And it is plain that, if we accept this theory, we must adopt at once the most thorough-going form of materialistic evolution. Tyndall may explode all the experiments which claim to prove spontaneous generation. Virchow may declare that anthropology discredits more and more the notion of our ape-like origin. He may also denounce the materialists as pernicious dogmatists of the firm of Carbon & Co., and he may assail Darwinism as a huge bubble company. Darwin, too, may admit the insufficiency of natural selection as a complete account of the origin of species; and a multitude of naturalists may point out genealogical breaks of greater or less extent. But these considerations

weigh nothing unless we deny the basal assumption of a universe ontologically complete from the beginning. Accordingly, a favorite procedure with evolutionists is to deduce the results of the opposite view. That view, it is said, denies the continuity of nature, and introduces miracle—a notion which is the death of all science. The cause of evolution is declared, with endless iteration, to be a belief in continuity against miracle, and in law against arbitrariness. The emphasis with which this statement is made shows how little of positive evidence can be adduced. Meanwhile the opponents of evolution continue to insist upon breaks, as if they had the slightest significance so long as the underlying conception of continuity is allowed. On the other hand, if the non-evolutionists would break, not with the facts but with the metaphysics of the evolutionists, the facts upon which the latter rely would lose very much of their significance. Ontological continuity is compatible with a lack of phenomenal continuity, and conversely phenomenal continuity does not prove ontological continuity.

The bearing of the last clause will become clearer if we inquire what is meant by evolution. The very notion is often surrounded by a nebulous haze not unlike the primeval fog itself. The root idea is an unfolding or unrolling, and this, by an easy transition, is applied to denote the several stages of an individual, or of a changing system. In both cases there is the thought of hidden powers which come gradually to manifestation. But the idea has no application to the production of the substantial. This must be either eternal or created.

A process of creation is meaningless except as it denotes successive creations. But a thing must either be or not be; there is no half-way possible. Hence creation and evolution are not properly opposed. The opposite of creation is eternal existence. In speculation, however, evolution is commonly applied to the successive stages of the system; and here the conception implies at least two factors: (1) an agent or agents; and, (2) a product. It is hard, indeed, to conceive an evolution without a third thought of a goal toward which the process tends, and by reference to which its progress is measured. Without this thought evolution is only a meaningless stir, from which all thought of progress must be excluded. In that case, evolution would be neither progress nor regress, but simply change. It would be only a new form of Heraclitus's doctrine, that all things flow. What, then, is the agent or agents in evolution? Every process demands some definite agent, or set of agents, for its realization. It is not uncommon to find evolutionists ignoring this simple consideration. This may be due to the exalted state of mind in which many of them are. The bare word is a talisman which nothing can withstand; and indeed it seems to be a synonym, not only for all that is profound, but for all that is holy and reverend. Hence a certain emphasis, and even unction, may be noticed in their pronunciation of the sacred name. Having thus got used to evolving things, many are prepared to evolve every thing without any hint of what conducts the process. Accordingly, they are no longer content to evolve life from the lifeless, and

higher from lower forms; but they insist on evolving the chemical elements, and even the ultimate atoms themselves. This tendency is easily understood as the outcome of a blind passion for construing and explaining which often seizes upon minds which are not in full possession of themselves. It overlooks the fact that explanation cannot go on forever, but always supposes some definite reality more ultimate than the thing explained. In this way the crude notion often obtains with the thoughtless, that evolution is able to explain both the being and forms of the universe, all alike being evolved from nothing. But this attempt to comprehend the realities of the universe as the result of processes which they themselves make possible, must be passed over as the outcome of a misplaced and inverted curiosity, which fancies that every thing is product and nothing is producer. The proposition to evolve matter implies that matter is not substantial, but only a passing phase of some universal activity. To the question, then, What is the agent or agents in evolution? we may say: (1) God is the active agent in all evolution. (2) An omnipresent, but blind, mechanical power is the agent. (3) God has created things so that they unfold by their own inherent energy. (4) The physical elements are the sole agents in evolution. (5) We may combine (1) and (3), and regard God as an omnipresent, but not the only, factor in evolution. In the first view, evolution is but the continuous activity of God realizing an unfolding plan. In the second, it is the continuous activity of a blind power, according to an order of which it knows nothing. In the third, evolution is the

unfolding of possibilities originally given in germ. In the fourth, it is the successive phenomena and combinations of the physical elements in their ceaseless striving after equilibrium. As such it is purely phenomenal, and exists only for the perceiving mind. The elements themselves know nothing of the process, and are indifferent to it. It is all the same to a molecule of iron, whether it is coursing in the veins of a man or blazing in the fires of the sun. The current evolutionist speculations are an odd compound of materialism, hylozoism, and Spinozism; and Spinozism, in turn, is a contradiction made up of the Eleatic and Heraclitic philosophies. But where there is great ignorance of the history of philosophy, antique whims and superstitions are easily mistaken for new discoveries. The same ignorance conditions their acceptance. That such a theory is fatal to science we have pointed out in chapter iii.

We have next to inquire what is evolved. To this question, also, there are various answers. Some of the more enthusiastic, as pointed out, fancy that every thing is evolved; but this view needs no further notice. And as the organic world is the great field of evolution, we confine our attention to that for a moment. In discussing organic evolution, the great question is, not what is a species, but what is an individual. If the individual is a substantial subject, it cannot be regarded as a product of evolution, but as a new factor introduced into the system; in short, a creation. It is, indeed, possible to assume that it has existed in germ from the beginning, but this view is practically obsolete. But

whether we view it as a new germ dropped into the stream of things, or as the development of a pre-existing germ, it is equally improper to speak of it as evolved as to its existence. Evolution applies only to its unfolding, and assumes that the germ and its potentialities are already there. But if, on the other hand, the individual is nothing substantial, but only in a combination of the elements, or a passing phase of the universal activity, then both individuals and species are mere phenomena; and the difference between one species and another, or between the organic and the inorganic, is purely phenomenal. This conclusion applies to any theory, theistic, atheistic, and pantheistic alike, which denies creation in connection with every living thing, and the pre-existence of all germs from the beginning. On the theory of idealistic theism, or of atheistic pantheism, such a denial would reduce all things to unsubstantial forms of the omnipresent activity. An individual would be but the locus of a particular activity, and nature would be the locus of the sum of the activities: or, since a locus in mathematics denotes the path of a point moving under a certain law, we may call a thing the law of a particular activity determining a certain locus; and we may call nature the law of the sum of the activities, determining the general locus of the universal activity. In this case both individuals and species would be phenomenal, and could be neither derived nor transformed. These terms apply only to the substantial. Individuals would be phenomenal phases succeeding one another according to a certain law, but without any essential connection. Species would be, externally, phenomenal

groups of phenomena; internally, they would be the norms according to which the universal power consciously or unconsciously proceeds in producing the phenomenal individual, and the transformation of species would mean only the variation of these norms of production. But whether the norm changed or remained constant, the only relation between the individual combinations would be that of sequence.

If we adopt the materialistic view, which regards life as the result of mechanical combination, we reach similar conclusions. On that theory the universe is a great self-rolling kaleidoscope, whose pieces are forever shifting. We do not speak of the figures in a kaleidoscope as evolved from the preceding ones, or as transformations of them. There is a succession of phases and forms, but no proper evolution and no transformation. So when we look into the great world-kaleidoscope which materialism posits, we see only a succession of phases and forms. The elements abide unchanged through all, and are indifferent to the outcome. As the mist knows nothing of the rainbow which it reflects, so the dark mechanism of the universe knows nothing of the phantom of evolution which it founds. The underlying realities do, indeed, contain the ground why one phase should succeed another, but the phases and forms themselves, as purely phenomenal, could have no relation but that of sequence or co-existence, and could not exist at all except in the mind of an observer. It would not alter the case in the least if an unbroken genealogical sequence existed between the highest and lowest forms. It would still be unmeaning

to speak of the higher as derived from the lower, or as transformations of the lower, for only the substantial can be derived or transformed. A transformed phenomenon is another phenomenon, and for the reason that the essence of a phenomenon is a certain manner of appearance. Suppose, then, we allow an unbroken genealogical sequence between man and the monkey, we are still not allowed, upon this theory, to speak of man as a transformed monkey, or as derived from the monkey. For both man and monkey are but unsubstantial phases of the eternal flow, and hence there is strictly nothing either to derive or transform. The monkey is one form in the kaleidoscope, man is another; there can be no other connection. In short, the evolution, derivation, and transformation of species are inexact expressions on any theory except that of mediæval realism. The individual, we repeat, is the great mystery, and there is no more difficulty in passing from one species to another than in passing from one individual to another. If the individual is any thing substantial, we can only view it as a new beginning, having no more ontological connection with its ancestors than one atom has with another. The impossibility of viewing it as made of some universal substance has been shown in the previous chapter. If the individual is real, species are, externally, groups of similar individuals, and, internally, they are the norms according to which creative power proceeds in positing individuals. The constancy of species would mean the constancy of these norms. The transformation and derivation of species would mean the variation of these norms. The evolu-

tion of species would mean the passage from simple to more complex and differentiated norms. But in any case, the individual would be something for itself, not an old thing made over, and afterward to pass into something else, but an abiding unit of being with a fixed law in itself. No theory contemplates the transformation of the individual, but only of the species. A flowing curve consists of fixed points; and if we regard the organic world as composed of such flowing curves, we have still to regard the individual as, at least relatively fixed.

At this point the old realism rules our thoughts to an unbecoming degree; and we fancy that there is an essential something which glides unchanged from individual to individual. Hence when man is said to be a transformed monkey, we overlook the force of the adjective, and regard man as a monkey still. The realistic fancy which underlies this notion is evident. It overlooks the element of individuality, and dreams of an abiding essence in the species. Theism, however, cannot regard species as any thing more than the norms of the creative activity; and if these norms grow in complexity and diversity, so that individuals become more and more differentiated, and organic history show a passage from the simple to the complex, there is nothing in the fact at which a sound mind should take offense. It merely describes the way in which the basal reality acts, and decides nothing as to the character either of the producer or of the product. To the question, What evolves? we found several answers given. In like manner there is no agreement as

to the product of evolution. It may be an unfolding plan constantly passing into reality. It may be a series of blind activities without any substantial product. It may be an unsubstantial succession of material combinations which have no existence for the realities which conduct the process. It may be only the latent capacities of germs originally given or dropped upon occasion into the stream of things.

It is becoming clear that the facts on which the defenders of either view depend are quite ambiguous without an underlying metaphysical conception. We have previously pointed out that the fact of breaks is powerless against even materialistic evolution, so long as its assumption of the completeness of the system from the beginning is denied. Moreover, there is nothing in the doctrine of evolution which makes it necessary to maintain the continuity of organic forms, or that nature never makes a leap. Great phenomenal unlikeness, as in the case of the butterfly and the caterpillar, is compatible with genealogical connection. We point out, on the other hand, that the facts of observation, though they were a thousand-fold more pertinent, are powerless to prove the metaphysical conception on which atheistic and pantheistic evolution rests. That conception denies freedom, creation, purpose, control of any kind, and reduces all change to an aimless shuffle of material elements, or a necessary motion in the universal substance. Now, if it were possible to arrange all organic forms in linear genealogical order, the denier of such evolution need not be in the least dismayed; for such a fact in no way decides what the individual

is, or what the power is which underlies the process. He can claim that the history of things is not mere shuffling of the same elements, but is underlaid by a personal and creative power which introduces new factors according to a certain order. Such a conception would undoubtedly be greeted with a cry of "fiddle-sticks," and the fiddle-sticks would be brandished all the more lustily that this conception cannot be discredited in any other way. It rarely happens that an advocate is willing to allow his adversary to state his own case, and the average evolutionist is no exception. He delights in charging his opponent with denying the continuity of nature, and styles his theory a doctrine of "breaks" and "supernatural irruptions." In order to increase the opprobium, he conceives a "break" as equivalent to a smash, and pictures an "irruption" in the most scenic manner possible. Where mental ossification has set in early, or has reached an advanced stage, these considerations will be conclusive. But the rational non-evolutionist does not deny the phenomenal continuity and intellectual consistency of nature, and he does not deny the metaphysical continuity of the ultimate ground of nature. He repudiates only that most empty and unnatural notion of continuity which makes it consist in a ceaseless and purposeless shuffling of the same elements. The only continuity which has any value is no such dice-box continuity, but a continuity and unity of thought or plan, and the consistent guidance of all activities and of all agencies, whether one or many, whether new or old, toward its realization. It is the continuity of an argument in which all the facts and reasonings look

toward the conclusion. It is the continuity of the oratorio, in which all the performers are bound by a common law. It is entirely open to the non-evolutionist, who is also a theist, to declare that belief in an intelligent power back of nature necessitates the admission of intellectual continuity and unity in his works, so that every antecedent is a preparation for every consequent, and makes the advent of that consequent a logical necessity. He might even hold that certain inorganic antecedents imply the appearance of organic consequents; not as if life were the product of inorganic agents, but that such is the intellectual continuity of the system that when certain states of the inorganic are reached, the inner consistency of the system demands the appearance of living things. In short, he may hold with Leibnitz that there is a logic in nature, and that the system is so truly one that every part of it is conditioned by every other part, and at the same time is necessary to every other, every thing and every change being the necessary logical supplement to every other thing and change. In such a system there would be the strictest unity and phenomenal continuity. All things would unfold with absolute logic, but God would be the logician. All these assertions are quite compatible with complete denial of materialistic or philosophic evolution. That phenomenal science could have no objection to such a view is almost self-evident. So, then, we see that the great case of evolution *vs.* creationism is not so much fact against fact, as it is one metaphysical theory against another. The notion that any possible observation can decide the case, indicates a state

of mind which is almost hopeless. No careful student of the debate can have failed to notice that the argument for evolution has become almost entirely metaphysical, and rests upon a denial of freedom and creation.

Our aim, thus far, has been to suggest questions and possibilities, rather than to make positive affirmations. We have not decided for any of the views presented as possible. Our chief aim, perhaps, has been to show how largely metaphysics enters into this and kindred questions. Nevertheless, this long digression will not be without value for the development of our own views.

The discussion of the last two chapters has convinced us that nature is in constant dependence upon an omnipresent power, and that this power is both personal and intelligent. In so far, we have repudiated the deistic conception in advance. We have also seen that the world is not to be viewed as in any way a part of God, but rather as a product of his activity. This denies the substantialism of the pantheistic evolutionists. Finally, we have rejected the view which would make the Infinite subject to a necessary and unconscious development, but regard it as self-determining. We have now to develop the consequences of this view. And, first, we must view the world as having its existence only through the divine will and purpose. It has in itself no ground of being, but exists only because of its place in the general plan. Of course, this view is incapable of demonstration; but it flows as a consequence from theism itself, and is a necessary postulate of

theoretical science. The theist is forced to hold that every thing has its properties and place in the system, not because of some fathomless necessity, but because of the plan which the system exists to realize. Hence the system and its members can be properly understood only through the end for which they exist. That end may be to us inscrutable, or may be known only in the faintest outlines; but none the less must both the theist and the scientist hold that there is an end which conditions all the means of its realization. That the plan of the infinite demands the existence of every finite thing from the beginning, is sheer assumption. The conception is equally possible that that plan includes the introduction of new factors into the system along the line of development. Creation is no less conceivable as successive than as single. Which of these two possible conceptions represents the facts, can be determined only by observation; but neither of them has any *a priori* right above the other. The facts of physics, taken alone, would incline us to the former view; but if we hold to the reality of the soul, we must adopt the latter view. The indications of the facts must decide this question. But in judging this case, we must not regard the introduction of new factors as breaks in the order of nature, or as something for which there was no previous preparation. The theist is bound to protest against any such conception. He must assert the unity of the system, both in its co-existences and in its sequences; and hence he must assert that given antecedents demand certain consequents, not, indeed, as a materialistic necessity, but as a logical necessity.

If the sequence failed, the system would contradict itself.

Concerning a divine guidance and providence we shall speak hereafter; for the present we confine ourselves to the general features of the system; and here the theist must hold that there is a logic in the system which absolutely determines all co-existences and sequences. Thus there arises the thought of a phenomenal order which is consistent and unbroken, but which is, nevertheless, only the outcome of the consistent activity of the all-embracing God. The continuity and unity of this system would not consist in a rigid duration of the same factors, but in the subjection of all factors, new and old, to a common thought and a common law. Ontologically, a river is not the same for any two consecutive instants; phenomenally, it is always the same, for the new water is subject to the old conditions. This subjection of every thing in the system to what the plan of the system requires, constitutes its only unity and continuity. This unity would not be in the least disturbed if we adopted the pantheistic theory of nature. The divine activity would be consistent in its contemporaneous and in its successive acts; that is, the thought or plan of the whole would condition all the discrete activities, whether discrete in space or time, so as to bind them all into a unity of result. Now it is utterly gratuitous to claim that the conception of coming and going factors involves disturbance of the phenomenal order, or is in any way inconsistent with phenomenal science. It is equally gratuitous to claim that such new products are the results of mere arbitrariness,

and without connection with their antecedents. On the contrary, they are always demanded by the laws and logic of the system. But from this point of view, the question of spontaneous generation, or of the origin and transformation of species, would lose all significance for the theist. An apparent instance of spontaneous generation would only mean to him, that the invisible God produces living things under other than the ordinary circumstances; but the divine action would be no less and no more real in such a case, than it is in all reproduction. If the highest forms could be genealogically connected with the lowest, the theist would find in it only a successive appearing of individuals, each of which is only a phenomenon, or else is ontologically distinct from every other. In the former case, the individual is properly nothing; in the latter, it is a new factor. In truth, a reflective theist can hardly help admitting just such a sequence of phenomena as the evolutionist postulates. He must allow the intellectual unity of the system; and he must allow that the purpose of the system conditions all its details, whether of coexistence or of succession. He must, therefore, allow that any given state of the system logically conditions its subsequent states, so that a complete knowledge of the antecedents would involve an equally complete knowledge of the consequents, provided, always, that the conditioning purpose is unchanged in all respects. He would differ from the materialistic evolutionist only in denying that these several states do of themselves dynamically condition succeeding states. The logic of the system is of itself only a conception, and cannot

realize itself. There must be some agent or agents to whom this logic is law. The materialist holds that the physical elements are these agents. The theist teaches that the realizer of this logic is the all-embracing God. The development of the system is but the unfolding of a divine argument, every step of which conditions succeeding steps. But as premises and conclusion fall hopelessly asunder without the unity of the thinking mind, so premises and conclusion in the world-process are united only in and through the unity of the divine activity. We decide for this general view of the relation of God and the world. Whether all organic forms have a common genealogy we are content to leave to the naturalists to decide. The question is entirely without religious or philosophical significance. Hitherto it has been so infested with irreligious implications, and by consequence has been so befumbled by the irreligious rabble who were more anxious to be disagreeable to religion than to find the truth, that it has been well nigh impossible to discuss the question on its merits. Whether new factors have been introduced into the system in connection with animal life depends upon the view we take of physical life. If we regard it as a function of the elements, or as a peculiar phase of divine activity, there is no such introduction. If we view a living thing as being a substantial and individual agent which is the ground of the form and unity of the organism, then we must hold that all reproduction is attended by creation. In only one case can we get behind phenomena so as to be sure that there is any thing truly individual and abiding behind the appearance. This

is the case of the soul. We are abiding persons. Every attempt to explain mental phenomena as the result of a plurality of elements, fails utterly. The conception of a unitary and abiding soul, is the only one which is not hopelessly shattered by the most patent facts of consciousness. In the other cases mentioned, the known facts do not allow a positive decision; but in this case, the known facts compel us to regard the soul as a new factor in the system. It is not introduced, however, without antecedents, nor without regard to the character of the antecedents. On the contrary, because of the unity of the system, the antecedent logically determines both the consequent and its character. Hence the facts of heredity. To the question whether such new factors are immortal when once introduced, only a formal answer is possible. The finite begins to exist only because the general plan of the system calls for it. It follows that its existence would cease, if at any time its significance were lost. No finite thing has any claim to immortality simply in its right as substance.

A first impression will doubtless be that we are claiming a large and intimate knowledge of that which is essentially unknowable; but this impression, though natural, is entirely mistaken. The question which concerns every theorist is, how to conceive the ground of phenomena. The human mind cannot help forming some conception; it only remains, therefore, that the conception be adequate and self-consistent. When such a conception is reached, the mind has done all that it can do in its effort to grasp reality. Now, as we have

before pointed out, every scientific hypothesis is but an attempt to form a sufficient conception of the cause of certain facts. The chemist displays an intimate acquaintance with the composition of chemical molecules, and is ready to write the most elaborate diagrams of their inner constitution. The physicist who holds the mechanical theory of gases, sees amazing atomic storms with his mind's eye. But these and similar views are only the conceptions which these men form of that which lies behind phenomena; and we might say of them, as well as of the theist, that they display a prodigious amount of knowledge about that which is essentially unknowable. The theistic conception, therefore, cannot be discredited by any such suggestion as this. It is no more metaphysical than the atheistic conception. It is no more unscientific than the atomic theory. It is no more mysterious than the materialistic doctrine. The theist's only claim is, that no other conception is adequate to the facts. He admits the mystery of the divine method and the unsearchability of these secret ways of God. He admits, also, that the all-conditioning purpose of the system can at present be only faintly dreamed of, and that it is quite impossible to see how many of the details of the system have any significance for the whole. His belief that they have, rests upon his faith in the divine intelligence; and inability to see a meaning does not prove that there is none. But on all these accounts he prefers that daily science should use the language of daily life, as being at once more compatible with reverence and with the needs of phenomenal science. But when he leaves the phenomenal

and asks for an ultimate conception, he hesitates not to confess his belief that all finite being, and change, and progress, depend upon the immanent God.

This position will not commend itself to the ossified mind. After all deductions are made from the empirical philosophy as a complete philosophy of mind, it must still be allowed, that as a philosophy of prejudice it is a most valuable section of philosophical study. The ease with which habits of thinking are mistaken for laws of thought; and, on the other hand, the complete opacity of the sluggish mind to a new idea, receive from the philosophy of prejudice a complete explanation. The habit of associating being and matter leads to the notion that all being must be material; and such mental paralysis is even paraded as proof that spiritual being is impossible, even in conception. And though both physics and metaphysics unite to discredit the vulgar notion of substance, still the typical conception of being is that of a lump. The tendency of most scientific speculation is toward a pantheistic conception, in which all phenomena are but passing phases of the one; but still our conception, though similar in many points, will not appear any less objectionable even to those who hold the pantheistic view. In particular, it will be urged that we have made a wholesale use of miracle, and have thereby struck at the root of all science. To the latter part of this claim we reply that science is only one of many interests, and must never assume that the world exists solely for scientific purposes. The mentally one-eyed scientist perpetually forgets that the world may have a higher destiny than to justify his calcula-

tions. It is conceivable, without any great mental strain, that it should exist as a means for the instruction and development and service of free beings. The objection has no greater force here than against the doctrine of freedom. Some speculators have felt justified in denying human freedom on the ground that it would make science impossible. The order of things would be incessantly modified, and the calculations would be discredited. But this is sheer cant, which has mistaken itself for science. A general phenomenal constancy must exist to make a rational life possible. Any thing beyond this the scientist must regard as a fortunate circumstance, not as a necessity of any sort. Or rather, we may say that the uniformity of nature which science assumes means only that the same events always happen under the same circumstances; but there is nothing in this principle to forbid the notion that human and divine will may be of the determining circumstances.

Moreover, science need only assume the constancy of phenomenal laws. As soon as it inquires into the production of phenomena, it becomes speculation and not science. As to the charge of assuming miracle, the chief difficulty lies in the coarse deistic conception of miracle, according to which some awful figure suddenly takes shape from the empty air, and having overturned all the laws of nature within reach, retires again to some supernal region. An interference is represented as taking place from without, as if some terrible hand suddenly appeared and wrenched nature out of its course. But when these vulgar notions are abandoned, there is little in the notion of miracle, or interference, to call

for opposition. For ourselves we do not hesitate to allow that the natural is a constant miracle, and that all things stand, and all events come to pass, only because of the omnipresent power of God. But this notion of miracle demands further explanation. A man's action can be modified in two ways—either by external force or by changing his mind. In like manner, social forms may be changed, either by violence or by discussion resulting in opinions other than those on which the given forms rest. The modification would be as real in the latter case as in the former, and vastly more abiding. But there would be the great difference, that in the one case the change would be forced upon men from without, while in the other it would be reached through the laws of the mind itself, and in such a way as to seem but an unfolding of the mind's own nature. Now the current conception of miracle contemplates only the method of violence—a working against nature instead of working through nature. But we have seen that the mechanism of the universe is not the ultimate fact, but is merely the expression of the inner nature of things. A mechanical system of changes among things is but the translation of a metaphysical system of changes in things. The latter conditions the former and determines its outcome. But this inner nature of things can only be viewed as the expression of the world-plan. The theist must hold that the divine purpose in creation contains the true reason why any thing is as it is in any of its relations, and why events occur as they do. Below the realm of mechanical necessity, there is a realm of ends which condition and control

that necessity. Here nature is fluid. Here are the roots of nature. Here nature appears, not as an independent something, but as a constant flowing forth of divine energy. It has no laws of its own which oppose a bar to the divine purpose, but all its laws and all its on-goings are but the expressions of that purpose. In our dealings with nature, we have to accommodate ourselves to its laws; but we are not to think of such a relation between God and nature. With him the purpose is original, the law is but its consequence. Hence even the rigid system of mechanical necessity is itself absolutely sensitive to the divine purpose, so that what the divine purpose demands, finds immediate expression and realization, not in spite of the system, but in and through the system. We repeat, that nature is no independent power over against God, which must first be conquered before it can be modified; it is only the divine purpose flowing forth into realization. The constancy of nature, also, must be viewed as founded not in some mysterious necessity, but solely in the constancy of the divine purposes. We do not, then, regard the supernatural in its ordinary working as breaking through phenomenal laws or through the chain of mechanical necessity, which is supposed to rule in nature; but we regard it as founding and maintaining that necessity by which the phenomenal order is realized. While, then, we maintain in its strongest form the doctrine of a divine guidance and control both of the world and of the individual life, we also regard the common conception of this doctrine as very crude and superficial. Both those who assert and those who deny

are equally obnoxious to such a criticism; their conception of control and interference being that of external violence offered to a self-dependent system. On the contrary, we teach no breaks in the phenomenal order, or in the mechanism of nature, but rather that that mechanism, in all its phases, is pliant to the divine purpose, and is but an expression of the divine purpose.

We have a faint illustration of this susceptibility in our human modifications of nature. The conception of an end, accompanied by the mental state called volition, at once impresses itself upon the body, so that it realizes that end. We cannot really think that any thing flows out of the soul and grasps the nervous system. Even the sense of effort and strain attendant upon action, is in fact only the result of our volition upon the organism. The will, in itself, is as boundless as the conception; and if there were no reflex action from the body, the will would quickly shatter it. All we can say of this action of the soul on the body is, that the system is, such that volition cannot exist in the soul without finding an immediate echo in the organism, and through that, in external nature also, In this way, the face of the earth is changed. Mr. Marsh, in his work, "Man and Nature," has shown that human volition has been one of the great modifiers of physical events in our earth. If we should read back the history of our globe, we should find, of course, the leading features quite independent of human volition; but we should also find a multitude of details which had their origin in human thought and will. They would have a mechanical explanation, so far as

mechanism can explain any thing; and at the same time they would have their roots below mechanism. This serves to illustrate what we mean by speaking of nature as absolutely sensitive to the divine purpose. It also illustrates how "interferences" and new beginnings are quite compatible with unbroken phenomenal order. Every believer in freedom is forced to hold that the physical system is constantly modified from without, and that it was intended to be the pliant, subtle servant of mind. There are many details which cannot be traced back to the nebula, but find an absolute beginning in man's volition. Beyond that point they are not represented by any thing. We believe in a similar divine working in the world, so that the system of things is constantly taking up new threads and new factors which enter into the general plan of the web without disturbance, and without strangeness, for each such new factor is fitted for the place it is to fill. In the same way we think of a constant divine guidance and providence which descends to the smallest details of the individual life and well-being. Of the truth or falsehood of such a belief science can say nothing. We frequently hear it announced with a great flourish, that science knows nothing of a divine control in nature; that every thing takes place by invariable sequence; and there seems to be a general notion that such a remark is very important, both in its affirmation and in its denial. In fact it is a truism, and owes its significance entirely to mental confusion. The roots of phenomena do not lie behind them but beneath them; and no observation can ever reveal

how phenomena are produced. Unbroken phenomenal order, or invariable phenomenal sequence, is entirely consistent with incessant modification. The notion that science conflicts with the doctrine of a divine providence is sufficient to convict one of hopeless philosophical incompetency. It is the outcome of thoughtlessness which has degenerated into cant. No observation of human action would reveal a controlling mind. So far as we can see, the antecedents are all mechanical, and the sequence is invariable. There are nerves, and bones, and contracting muscles, whose action is purely mechanical, and reveals to observation no trace of a directing mind. Now if one should get so confused by this physical mechanism as to deny the existence of a controlling mind, he would do just what the man does who, from fumbling among the invariable phenomenal sequences of nature, concludes that there is no "interference," and that prayer is useless. Argument of this kind has become very common of late; and it serves to mark the philosophical degeneracy which has resulted from an exclusive study of physical science. On the other hand, the belief in prayer and providence can never justify itself by any study of nature, any more than a belief in the human mind can justify itself by an inspection of nerves and muscles. Nature is indifferent to both the belief and the denial. The belief must base itself on general inference from the character of God and from the general drift of national and personal history, and especially on revelation. If there be any facts which justify such a belief, there is absolutely nothing to discredit it.

But it may be urged that the very notion of mechanism is hostile to interjections, since every state must determine the succeeding state. We have ourselves insisted upon this factor in the chapter on Mechanism and Teleology, and have drawn divers conclusions from it. But this position is true only for an absolute or independent mechanism; and the drift of all our argument has been to show that the mechanism of nature is of no such sort. Neither its existence, nor its laws, nor any of its circumstances whatever, are founded in any necessity, but solely in the divine purpose. It advances, also, from stage to stage by no inherent necessity, but solely as the unfolding purposes of God require it. In strictness, then, we should say that no one stage conditions its consequent, but all stages are immediately conditioned by the requirements of the divine plan. Or we may reply to the objection from another stand-point. The science of mechanics assumes its forces, and the whole of theoretical mechanics consists entirely in getting the resultant of the forces assumed. It points out that given forces must have a certain resultant, but the necessity lies not in the forces themselves, but in their outcome when given. Celestial mechanics assumes attraction and the constancy of its law, and with this outfit it can demonstrate that certain orbital and other motions are necessary results under given conditions. But gravity itself, as a simple fact, is quite without the range of this necessity. Yet so subtle is the work of association, that by and by the necessity which attaches to the conclusion only upon the assumed truth of the premises, is carried over to the premises themselves, and then

nature is said to be bound by an adamantine fate. But in truth this "adamantine fate" is based much more upon blockheadism than upon any thing else. Indeed, necessity has a clear meaning only when applied to the conclusions from given premises, or to the results from assumed causes. At all events, it has only this meaning in mechanics. There we assume forces which might conceivably be altogether different in every respect from what they are, and then we determine their *necessary resultant*. We conclude then, (1) that the violation of mechanical necessity can only mean the causing of given forces to have a different resultant from their proper one, and that without the addition of any new force. It is safe to say that no believer in miracles and providence contemplates any such performance. We conclude, (2) that it is erroneous to speak of mechanical necessity as ruling in nature. The forces of nature being what they are, the results must be what they are; in any other sense the notion is without foundation. Thus once again it appears that reality of things is below mechanism, and conditions it. But this conditioning reality the theist must regard as itself conditioned by the divine purpose. Mechanism belongs only to the phenomenal, and can never conflict with the real. There is nothing whatever in the true notion of mechanical necessity which contradicts the absolute sensibility of the system to the divine purpose. For ourselves, we believe in both.

With regard to the introduction of new factors into the system only a word need be said. We regard the universe as existing in God, not as a given volume in a

larger volume, but as constantly depending on him, and in such a way that God is present with every part. We deny that space is for him a limit or a condition, so that to reach a given point he must cross over an intervening space. Even this crude notion rules popular conceptions. God is supposed to be in an outside region, and the existence of the finite is not only figured as something spatially external, but is supposed to be secured only by being outside of God. But our discussions have led to the conclusion that the infinite is truly omnipresent. Hence, when we speak of new factors as being introduced into the system, we have no such coarse imagination as if God had first made a soul in some extra-siderial region, and then carried it to a certain point and put it into a body, as a bird is put into a cage; but we mean that where and when the order of things which God has adopted as the rule of his action calls for it, there and then a soul begins its existence. If other factors besides souls are introduced along the line of events, we think of their introduction in the same general way. They are not arbitrary. They are not unrelated to their surroundings, but are in every respect what the laws of the system call for.

The influence of association in our daily thinking is so much greater than that of reason, that to many minds this conception will seem irredeemably absurd. Some who have been accustomed to associate being only with matter will appeal to the five senses against the divine omnipresence. That this view, like the Copernican astronomy, is a matter of reasoning with which the five senses have nothing to do, will be an impossible insight

to them. Others, again, who have advanced beyond this crudest stage, and who have been accustomed to talk about atoms and ethers, will still find this conception difficult, because they have not been used to thinking of the divine omnipresence. They will talk with the greatest ease and fluency about their views as facts, and discard our view as a metaphysical dream. It will certainly be difficult, if not impossible, to convince them that one theory is no more metaphysical or unscientific than the other, and that it is purely a question of consistent thinking. Others again, like the Spencerians, who have got used to the notion of an omnipresent force, will find grave difficulty in conceiving that force as intelligent; and having totally misconceived what they are pleased to call the "persistence of force," the notion of creation will be especially obnoxious. Still others will appeal to common sense against a doctrine so *bizarre;* and this appeal to a judge without jurisdiction will pass for a final settlement. To all such the customary is the clear, and clear because customary. Finally, some will make merry over some aspects of the doctrine, and ask of what great value many of these new souls are. To which it may be enough to say, that none of us have such supreme worth as to make it safe to press this question. But while allowing the unsearchability of these ways of God, and also the many difficulties before which human wisdom is dumb, we still claim that the conception we have presented is the only one adequate to the facts. Here philosophy must adopt the apostle's words, and say, "In him we live, and move, and have our being." If we reject this view, we must

adopt some form of deism, or materialism, or atheism, or pantheism; and when we remember the difficulties and implications of these views, we decide for the one we have presented as the most rational, and as attended with fewest difficulties.

We may sum up the results of this discussion as follows: Creation is successive rather than single. The divine plan contains the reason why any thing is as it is, and the divine will is the source of all finite existence. The finite has no ground of being in itself, but is absolutely and always dependent upon the divine will and purpose. With the exception, therefore, of the free will, it is not to be thought of as offering in any way a barrier to the divine working, since it is but a form of the divine working. It cannot be our purpose, however, to represent this conception to the fancy, or in any way to construe the methods of the divine mind. Has God always created? How comes he to create? To these and similar questions there is no satisfactory answer. Here all human wisdom is at an end, and silence rather than speech is true wisdom. No more is it our purpose to picture the relation of the human and the divine personality. There is great fascination in this problem for mystical minds. Is God a person over against us, as a finite person is over against us? Or is there a unity and identity in the former case which does not exist in the latter? Is our thought a conditioned divine thought? Is our love for God, as Spinoza said, but the love with which God loves himself? Such questions have a value for devout feeling; and as

long as the New Testament declares that we are the temples of the Holy Spirit, and heirs with Christ of God, they cannot be charged with irreverence. But they admit of no theoretical answer. Such a feeling of union with the divine, or such a longing after communion with the divine, will always serve to stimulate thought, but it can never do the work of thought; and thought is obliged to rest content with affirming the human and the divine personality as two facts, whose connection is lost in mystery.

## CHAPTER IX.

### THE RELATION OF GOD TO TRUTH AND RIGHTEOUSNESS.

OUR previous discussions have led us to the conviction that God is one, personal, omnipresent, eternal, and independent. The meaning of the first two attributes is clear; that of the third and fourth needs a word of explanation. The notion of the divine omnipresence has two factors. The first is the thought of the immediate presence of God with all finite reality. The second is negative. We finite beings are limited in our immediate presence, so that to reach most things we have to pass over more or less of intervening space, or to use some medium of influence. This necessity we feel as a limitation. Now when we teach the divine omnipresence, there is the double purpose, (1) to affirm the immediate presence of God with all things, and, (2) to deny totally this limitation. God has not to cross a space to reach a given point, or to employ any foreign means of connection; but at every point he is present as the living God. It is not in our thought to affirm a bulk of God, as if he filled infinite space with an infinite volume. Such a conception of omnipresence is only the crude attempt of the imagination, and has no value for reflective thought. In like manner the doctrine of the divine eternity is as much negative as positive. We feel time, also, as a limitation. We are

not sufficient to ourselves. We weary, grow old, and pass away. The chief aim in ascribing eternity to God is the negation of these limits which we find in time. The thought of eternity as simply filling out infinite time by an infinite duration is a product of the fantasy rather than of the reason. But it is not our purpose to dwell upon these points. The other attribute, that of independence, contains a question of much speculative interest—the relation of God to truth. He is independent of things, but is he independent of truth? He founds and creates the world of things? does he also create the system of rational principles? What is the meaning of the divine independence, or absoluteness? The same question also appears in the theological discussions concerning the divine omnipotence. Is omnipotence only the greatest of possible powers, or is it truly unconditioned power? Can it do all things, or only the doable? Can it make the impossible possible, and conversely? or are the bounds of the possible determined by some bottomless necessity, to which even God must submit? The same question appears in moral discussions. Does God make the right, or only recognize it? If he makes the right, then he is himself above right; but in the other case we seem to trespass on the divine independence, in that we set up a standard which is independent of him, and which he must recognize. Indeed, to think about God at all seems a limitation; for that implies that the laws of thought and the forms of our conception are valid for the absolute. Without this assumption, all possibility of conceiving any thing whatever about the absolute falls

away; but with it, we seem to imply that logical and rational necessity binds even God himself. The problem in this discussion is to find the most satisfactory conception on this point, or the conception which, while satisfying the laws of thought, shall conserve at once the independence of God, and the absolute character of truth and righteousness.

Our experience can hardly fail to mislead us on this point. We have previously spoken of our minds as recognizing truth, not making it. Certainly truth presents itself in our experience as independent of ourselves. It is impersonal and universal. It has no past and no future, but simply is. It is neither yours nor mine. We discover it or admit it, but undiscovered or unadmitted it is none the less true. When a new fact or law is discovered, truth is not extended, but knowledge is increased. To us, therefore, it seems like a self-centered kingdom, secure against all attack and overthrow. It suffers no dictation; on the contrary, it is law-giving for reality itself. Righteousness, also, has equal independence in our experience. It is an absolute imperative which may be ignored or resisted, but cannot be changed. The suggestion that it can be made, or even tampered with, is sure to arouse the indignation of the common conscience. The laws of righteousness must be the same for God as for man; and if his government can be vindicated only by claiming that the divine righteousness is different in principle from human righteousness, why, then, his government is not righteous in the only intelligible sense of the word.

To call it righteous, meaning by that word *x*, and not what men understand by it in daily life, is weakness or knavery. This character of truth and righteousness in our experience is well fitted to make us overlook the fact that their relation to God cannot be the same as it is to us. If they were really creatures, they would still have the same objective character to the finite mind which they have in our experience.

Still more misleading is the persistent tendency to take abstractions for things, which is so marked a feature of the human mind. We need not go back to the scholastics for illustrations. Such phrases as natural law, or the reign of law, are excellent examples. The bulk of the statements into which such phrases enter, assume that law is a real sovereign, enthroned no one knows exactly where, probably in the neighborhood of Plato's ideas, but at all events actually regnant over reality. If any thing happens, it is in obedience to law. If any thing is to be explained, law is the magic word which makes all clear. Many who would guard themselves against this hypostasis of an abstraction in the case of derived phenomenal laws, would still fall a prey to it in the case of the laws of motion. They must certainly be held as determining all space-changes by an inherent necessity which cannot be infringed. Nothing is easier, as nothing is more common, than to regard these laws as primal necessities which material things, at least, cannot but obey. And just as these laws are hypostatized, and reality is made subject to them, so also rational and ethical truths are erected into a realm of necessity which would exist if all reality were away.

Nevertheless, a little reflection will convince us, at least in the case of natural laws, that we here fall a prey to our own abstractions. No law of nature is the antecedent, but the consequent, of reality. The so-called laws of attraction and repulsion are but results of the inner nature of things. Their rate of variation, also, is but a result of what the things are. Even the laws of motion are far enough from being either rational or ontological necessities. They are but the outcome of the nature of material things, which might conceivably have been altogether different. This is palpably the case with the more complex derived laws. Instead of expressing what things must be, they only reveal what things are. All natural laws, then, must be regarded as consequences of reality, and never as its foundation. Still, so easily do we mistake abstractions for things, that after we have abstracted the law from the action of things, we next regard the things as the subjects, if not the products, of the laws which they themselves underlie. It is only one step more on the same road to regard these laws as existing before all reality as the expressions of some all-controlling necessity. When reality appears, it has nothing to do but to fall into the forms which these sovereign laws prescribe. Thus the cause is made subject to the effect, and reality is explained as the result of its own consequences.

Many would allow this criticism with regard to natural law, who would still insist that truth is independent of reality, and law-giving for it. Nevertheless, we hold that the notion of a realm of truth independent of reality, is just as empty as the notion of a realm of law in

the void. Both notions are abstractions mistaken for facts. For what is truth in this connection? It cannot mean a truth of fact, for such truth depends upon the fact itself, and comes and goes with it. By truth, then, we can only mean rational and formal truth, that is, the laws of thought and the formal sciences of logic and mathematics. So, also, by right we cannot mean any specific form of action, because particular duties depend entirely upon the particular circumstances. We can only mean the ethical principles of love and justice which underlie all specific action. Truth, then, as we now use it, is sometimes called eternal truth, to indicate its unchangeability and independence; and the claim is ventured that if God and the world were both away, this truth would continue to exist. But the eternal truths express only fundamental laws of mental action or formal relations between ideas; and to affirm their universality can only mean that these laws are valid for all mental action, and that these relations always exist between the appropriate ideas. But these truths are utterly meaningless, apart from a mind whose law they express. For example, truths of number do not exist apart from the mind. They express the methods of the mind in grasping a multitude of units. Apart from mind, number and series cannot exist; both break up into unrelated units. When one speaks of truth as valid, even in the void, he curiously fails to see that his conception of the void is only a conception, and that he is himself present with all his ideas and laws of thought. And when along with his conception of the void he also has other conceptions, and finds that the customary relations be-

tween them continue to exist, he fancies that he has truly conceived the void, and has found that the laws of thought would be valid, if all reality should vanish. But in every such case, the void is only a thought; and the mysterious necessity reached is only the necessity of thought. The whole art of finding out what would be true in the void, consists in asking what is now true for the thinking mind. The true void would be the indistinguishable nothing; and the ideal distinctions of truth and error, right and wrong, possible and impossible, would have no meaning, to say nothing of application. But as a realm of truth apart from reality is only an empty abstraction, we must allow that all truth, both speculative and ethical, is but a consequence of fundamental being. The true, the right, the possible, are founded in the nature of things. The converse proposition is an attempt to comprehend reality as the product of its own consequences.

Here the defender of the absolute independence of truth may say that he does not insist upon a realm of truth and necessity apart from being, but in being; but this changes the expression more than the meaning. For these necessary truths must either found the nature of being, or be founded in it. The former conception is empty; the latter must be adopted. We cannot, then, subject the being to the necessity which it founds. The attempt to find something more fundamental than the real, and to subject the real to the necessary, is not based upon clear thought. It finds one of its most striking illustrations in the old cosmological argument for the divine existence. This argument concluded from

contingent being to necessary being; and the doctrine was, that fundamental being is necessary being. The scanty truth in this argument is simply an analytical judgment. It is the conclusion from dependent being to independent being; but as these are strictly correlative notions, the one implies the other. For the rest, the argument is untenable. In speaking of mechanical necessity, we pointed out that the necessity lies in the resultant of given forces, but not in the forces themselves; and that the necessity attributed to the forces is but the result of habit uncorrected by criticism. So here from the notion of dependent being, we necessarily conclude to the notion of independent being; and then by a transposition very easy to make, we pass from the necessity of affirming such being, to consider the necessity as an attribute of the being itself. The necessary affirmation of existence is changed into the affirmation of necessary existence. That this conclusion is in excess of the premises, is plain; for the reality of the dependent can only justify the conclusion of the reality of the independent. Moreover, it is hard to say what necessity would mean in this case, beyond the self-sufficiency of the real. As we pointed out in the previous chapter, necessity has a clear meaning only when applied to the conclusions from assumed premises, or to the resultants of assumed causes. When applied to being, it is hard to see in what it increases the notion of the fundamental reality. The ground of this doctrine, however, is evident. Speculators, misled by the changes of phenomena, and probably also by their own feelings of weariness, have thought that the simply real

might not be able to maintain itself, and thus might go off in a puff, or might fade and flicker out. It would, therefore, be a great relief to our feelings if we fancy some inexorable necessity in the real against which reality may lean. Hence the notion of God as the necessary being; and hence, also, the attempt to introduce degrees of comparison into the notion of being, such as the *ens realissimum* of the earlier speculators. But while the attempt is easily explained, it is perfectly futile. No momentum of thought will ever logically carry us beyond the affirmation of the independent and the real. The bottom fact of the universe is not a necessity of any sort, but an unconditioned, self-centered reality, which by its existence founds necessity and truth, and gives them all their meaning.

Here it may occur to some that this position is like that of Mr. Mill about other worlds, where two and two make five. If we make truth and right the consequences of being, instead of its foundation, then it follows that both would be different if being were changed. Thus the absoluteness of truth and right is destroyed as much as by Mill's doctrine. We reply: Mill's doctrine based truth solely on individual experience, and denied, therefore, any universal rationality. We, on the contrary, base truth not on the nature or experience of the finite individual, but on the nature of the one all-embracing reality; and hence we affirm a universal and consistent rationality for all beings. The claim that if fundamental being were different from what it is truth would be different, is quite empty; for it merely says that if every thing were absolutely otherwise nothing

would be as it is. It is a purely formal statement with no thought corresponding to it. Our conception of reality is built up from rational elements; and without them, the notion is a pure negation. But reality exists, and the laws of rationality which it founds. It is, then, needless to ask what would be true if, unfortunately, reality did not exist, or did not exist as it does.

We regard God, then, as the foundation of truth and right. This view must be carefully distinguished from the notion that God can either make or unmake truth and right. The latter view is speculatively as erroneous as the view which makes truth independent of God, while morally it is unutterably pernicious. We shall, perhaps, make our own conception clearer by an examination of these opposing views. The one asserts the divine absoluteness with regard to both speculative and ethical truth; the other affirms that the laws of truth and right are sovereign, even over God. As two distinguished philosophical representatives of the respective views we name Descartes and Leibnitz.

According to Descartes, all truth and right depends upon the arbitrary will of God. God is absolute, and makes truth and right. In this affirmation he has been joined by many philosophers and theologians. The defenders of this view, however, are far from making common cause with the skeptics who declare truth and justice to be matters of custom and prejudice. The Greek sophists held this view;* and at a comparatively recent period, Hobbes taught that positive law was the source

* See Plato's "Theætetus and Gorgias" for an exposition of this doctrine.

of all right and justice. But the Cartesians and others who have viewed truth as created by God, held no such doctrines. Their chief aim, of course, was to assert the absolute independence of God; although the view has sometimes been held from polemical reasons. Sundry obnoxious theological dogmas have sometimes been defended on the ground that justice in God is not what it is in man, but is purely the creature of the divine will. This doctrine of divine arbitrariness is often held by the unthinking, because arbitrary, lawless power is the highest conception they can form. Finding both reason and right irksome in their own experience, they take a kind of revenge by placing God above them. But these cases are of value only to the mental and moral pathologist. We confine our attention to the philosophical aspects of the question.

Curiously enough, Descartes, at the very beginning of his system, employs an argument for the divine existence which directly contradicts his own position. That argument is made to turn upon the divine veracity, which, it is said, would be compromised if our faculties should deceive us; and this, in turn, would compromise the divine perfection. But if any thing which God wills is right on that account, it is plain that this argument falls to the ground. The theologian who holds the same view, commits a like inconsistency when he attempts to justify the ways of God; for such justification can only take the form of showing that God is just as we conceive justice. But by hypothesis God is not just as we conceive justice, and further, whatever he does is just on that account. A justification, then, is both unneces-

sary and impossible. Moreover, even the positive statement that God can make truth and right fails to say what is meant, but rather results in just the opposite. To affirm God's independence of truth is equally to affirm that truth is independent of God. The statement that God is perfectly arbitrary with regard to truth, assumes that truth exists apart from the divine volition; for if truth had not a fixed meaning on its own account, the arbitrary will which is supposed to act upon it would have no object. So, too, the statement that God makes truth is equally unintelligible without assuming that truth has a meaning apart from the act which created it. For why should the product of that act be called truth rather than error, unless it agree with certain standards of truth, with which error disagrees? To object to this test, is to declare both truth and error to be only subjective distinctions without any validity in fact; but this would be an utter abandonment of the absoluteness of truth with which we set out. The question, then, Can God make the false true? assumes that true and false already have a definite meaning and measure. If the two notions were not sharply and clearly distinguished, there could be no question about changing one into the other. Hence, all such statements as that God can make the false true or the impossible possible, imply that the standard of truth and possibility exists independently of God. Thus they affirm the very thing they were meant to deny, namely, that truth is not a creature of the divine will. Without some valid standard of truth and possibility, we cannot distinguish between true and false, possible and impos-

sible; and hence the affirmation that God is independent of truth, cancels itself.

The view which we have been considering is often put negatively, in the claim that God can unmake or break truth, but it is just as inconsistent as the positive form of the doctrine. For in order that truth shall be broken, it must first exist as truth. If any proposition which is to be overturned, say the law of identity or a mathematical equation, were not in itself true, there would be no truth to break. For example, we say that a straight line is the shortest distance between two points; and we think that we have therein a truth which is self-supporting and infrangible. Now, if we suppose God overturning this proposition, he cannot be said to make it false unless it were first true. The proposition that a curved line is the shortest distance between two points cannot be made false, for it is false. Or, suppose the purpose is to overthrow the law of causation; can God make events come to pass without a cause? Here, again, the inner contradiction is evident; for we are forced to assume God as *causing* events to come to pass without a cause. Thus we come back again to the point that to make truth a creature of the divine volition is not only an impossible conception, but it breaks down through its self-contradiction. It does not escape the dualism of referring truth to some other source than reality; and in this respect it becomes identical with the opposite view. This dualism can be escaped only by declaring that for God there is no truth and no error. He is absolute arbitrariness, for which thought has no laws and consistency

no obligation. In that case, truth and error would be only the fictions of our own minds. But this view, again, overshoots its mark; for the aim of those who insist upon the divine independence is not to make God without truth or righteousness, but to make him their creator. Thereby they think to exalt even more his absolute truth and goodness; for as truth and goodness are the most august and reverend facts of the universe, their creator must be all the more glorious. Unfortunately this view, by its inner dialectic, passes over into a denial of both truth and goodness. While, then, we are in full sympathy with the motive which underlies the attempt to make God independent of truth, we are forced to admit that the common statement, instead of reaching its end, overthrows itself.

The claim, on the other hand, that truth and right are independent of God, saves, indeed, their absoluteness, but only at the expense of the divine independence. Here, also, the motive is good, but the thought is unclear. We have already considered the abstract form of this doctrine, and content ourselves with examining a concrete illustration of it. According to Leibnitz, truth does not exist as a necessity outside of God, but it exists as a necessity within the divine mind. To the divine intelligence all truth is present as a series of eternal possibilities. As such they are recognized by God, but not created. They have their foundation in the eternal nature of reason, and can be neither made nor unmade. Logical sequence is unbreakable even by omnipotence. To the charge that this is an encroachment upon omnipotence, the answer is, that power has no re-

lation to truth. They belong to totally different realms, and can never collide. Accordingly, in discussing the origin of the world and the problem of evil, Leibnitz claimed that all possible systems existed in the divine mind, each of which must logically lead to one certain outcome. It was not, then, in the divine choice to determine the results of a given system; this, as a matter of logic, was independent of the divine volition. In a given system every thing results with strict logical necessity, and nothing could be changed without contradicting the system. Thus, in mathematics every detail flows with necessity from the axioms and intuitions at the base; and not even the most unimportant corollary in the remotest regions of mathematics could be denied, provided it were rightly deduced, without dragging the whole science down into ruin. Leibnitz conceived a similar relation to exist between all the parts of the real system. The whole conditions the parts no more than the parts condition the whole. God, then, has nothing to do with determining the consequences of a system, or with the logical possibility of a system. An infinite number of systems are possible, and their consequences are all determined. All that God can do is to determine which of these possible systems he will realize. It belongs not to him to set the bounds of possibility, but only to realize that which, apart from himself, is eternally possible. In choosing between the possibles, God is guided by the conception of a good; and that system will be realized whose outcome is the best possible. Where there is infinite goodness to prompt, infinite wisdom to foresee, and infinite power

to execute, the best course must be taken. Optimism is an *a priori* necessity of Leibnitz's system—a fact which critics have commonly failed to notice. They have thought it relevant to insist upon the evil in the world, as if Leibnitz ever dreamed of denying it. He claimed only that the system, taken as a whole, both in its co-existences and sequences, is the best possible.

This system seems unquestionable at first sight, but, upon reflection, it is most obnoxious to criticism. This doctrine of a divine fantasy which forever produces pictures of all possible worlds, seems a gratuitous anthropomorphism. The notion of a best possible system, also, is a distinct contradiction, like that of a largest possible space or number. Every finite must be definite both in intensity and degree of perfection. It will, therefore, be always possible to imagine something higher still. God alone is the best possible. For any finite system we must be content with saying that it is good. Moreover, the Leibnitzean system falls into the dualism of which we have complained. It regards reason as imposed on reality, instead of being founded in it, or as being reality. In this way we once more fall a prey to abstractions. We have seen repeatedly that a realm of necessity and reason, apart from actuality, is only an abstraction mistaken for a fact. Moreover, if a realm of reason could exist apart from reality, it could never be known except as a second and parallel realm existed in reality as its essential law. The rational can be known only by the rational. But this realm of reason in things would make it unnecessary to postulate a realm apart from things. Hence the ground for the distinction be-

tween truth and error, right and wrong, the possible and the impossible, must be found in God himself; and we must repudiate the notion that these distinctions exist as objective norms and limits for God. They are but the consequences of what God is.

So, then, we object to the statement, either that God makes truth and right, or that he only recognizes them. He is rather their source and foundation; and they, in turn, are the fixed modes of his manifestation. We may, then, regard them as consequences or expressions of the divine nature, or as the laws of the divine activity, or as the constant modes of the divine manifestation. The first form is, perhaps, the least satisfactory; but, when reduced to its true meaning, it is identical with the other two. We devote a paragraph to its exposition.

Objections have long been urged against making the divine activity and manifestation dependent on the divine nature. It is claimed that this view must lead to a complete determinism, and thus destroy the divine freedom. This thought of God as superessential appears in the various trinities of the Greek philosophy, and has often re-appeared in modern speculation. The unoriginated God is regarded as above mind, and reason, and essence—ineffable and incomprehensible. The Cartesians tended to place God, as perfect being, above both matter and mind. Schelling, also, in his later philosophy, regards the divine nature as something derived. The central factor of the absolute is will; and all the mental and moral attributes are viewed as self-

determinations. They are in no respect what we might call constitutional with God, but are the product of the absolute will. The same view has been elaborated at length by M. Secrètan in his work on Absolute Liberty, (*De la Liberté absolue.*) Both writers make will the essence of fundamental being. This central and essential will is the foundation of the divine nature. It has no constitutional determinations of any sort, but makes itself all that it is by its own absolute self-determination. Any other view is regarded as fatal to the independence of the absolute, by making it subject to its own nature.

There seems to be here an overstraining of the notion of nature, and a misunderstanding of it founded on the limitations of our own experience. Our experience is well fitted to mislead us upon this point. Our mental life has a successive unfolding; and, indeed, the finite in general is subject to the same law. When, then, new faculties or properties appear, they are said to be an unfolding of the nature. Thus there arises the thought of some unconscious antecedent energy, which, by a mysterious necessity, unfolds itself into manifestation. The nature is forthwith hypostasized, and is thereafter regarded as the source, if not of the being itself, at least of all its outgo. Then, by the force of habit, we think of the divine nature as having similar antecedence in the divine life and manifestation. Again, our mental life is not self-sufficient, and we cannot reach its roots. The mental streams rise in an undiscovered country, and consciousness lights up but a small part of the soul. We explain this, also, by referring to our nature. Thus the nature comes to mean a mysterious and impenetra-

ble power ruling in us, and making us what we are. When we add to this the thought of necessity as the law of that power, we have already reached complete determinism, and have justified the repugnance to speaking of the divine nature. For thereby we reduce the divine life and character to products of a blind constitutional necessity. But here we commit a twofold error: (1) we transfer to the divine the limitations of the human, and (2) we fall a prey to an abstraction. No one, upon reflection, would think of the divine nature as temporally antecedent to the divine wisdom and goodness. It only remains, then, to think of it as the mysterious source from which the divine life springs. But this mysterious source is only a myth; for the nature of a being, except in unreal abstraction, is indistinguishable from the being itself. All that we can mean by a being's nature is just the law of its essential activities. Thus, the soul knows, feels, and wills. We explain these activities by referring them to the soul's nature; but that nature, in turn, is merely to do these things. Again, we say that the atoms attract, and explain it by their nature; but when asked what the nature of the atoms is, we reply, to attract. Thus we explain the outcome by the nature, and define the nature by the outcome. We may say that the nature of a thing is not the law of its essential activities, but is that factor in the thing which founds both the law and the activities. But here, again, we are the victims of a persistent delusion. The thing itself founds its own law and outgo. A thing is not a hollow something in which natures and forces are stowed like springs in a

box. A true thing is an indivisible unit whose essential activity has a certain law; and this law is its nature. Yet, misled by a pernicious tendency to personify abstractions, we make this law a thing, and then put it back of itself to explain itself. The unsatisfied imagination will urge that there must be something in a thing which makes it what it is; but this is either a false claim or else it is an attempt to conceive how a thing is made. The truth is, that this itch of the imagination is the real source of the idle mystery of the thing in itself, and also of the bulk of the objections to freedom. The nature is hypostasized and put behind the thing; and then we lament that we cannot know something, when, in truth, there is nothing to know. However far we may push our analysis, we can always fancy a mysterious nature which will forever elude us, and at the same time will forever rule us. But this mystery is only a philosophical will-o'-the-wisp. Instead of hunting this delusion, we should be much nearer the truth if we declared the law of a thing to be the thing in itself. Being without essential law is nothing. Law apart from being is also nothing. Both must be united in reality. Being, then, is substantial law, and law is the expression of being. The substantial law is the being, and back of it there is nothing. This is the true and only thing in itself; and the only insoluble question concerning it is, how is it made? In a previous chapter we condemned the attempt to separate reality into two independent factors, being and force, as mistaking logical distinctions for real ones. The separation of reality into the two factors of being and law rests upon the

same confusion. How a soul is able to think, feel, and will we cannot know. It is an ultimate fact of the soul's life. The thinking, feeling, and willing soul is given in experience. We get no insight from hypostasizing faculties or natures which are only abstractions from the facts to be explained. The ultimate fact of the universe is an unconditioned reality. This reality is as it is, and the law of its activity is as it is; but neither admits of any deduction. Hence we can never get behind the fact that the principles of reason and right are the laws of the essential divine activity. To refer to the divine nature as something more ultimate, is only to delude ourselves with a figment of the imagination. But in calling these principles the laws of the divine activity we do not think of them as external norms, but as essential expressions of God himself.

The other part of the claim, that the nature even of fundamental being must be mysterious to itself, is also groundless. This claim, also, transfers to the infinite the limitations of the finite. In treating of the divine personality, we said that full personality exists only where the nature is transparent to itself, and where consciousness grasps with perfect insight the being and all its activities. What is meant by this insight and transparency may be faintly illustrated by reference to the discursive activity of our minds. The mind, in reasoning, is not the prey of some inner nature; but finds its processes transparent to itself. There is in this case no back-lying mystery which the mind cannot penetrate, and out of which the activity proceeds; but the mind is conscious of itself as self-determined and regnant in

its activity. This which is measurably true for us in our reasoning, we regard as absolutely true for God in all his activities.

We conclude, then, that the divine nature can only mean the law of the divine activity, or manifestation. To base truth and right upon the divine nature is the same as declaring them to be the laws of God's essential activity. To some this view, also, will seem a limitation of the divine absoluteness; and they will claim that God, to be absolute, must give himself a law. If he is subject to a law which he does not give himself, then he is not properly independent. Opposite errors mingle here. One is a hypostasis of law; the other is an overstraining of the meaning of absolute. The former error we have sufficiently considered; the latter calls for a word of criticism. All reality must be definite, and all activity must have a certain form or law. Without this element of definiteness, the notion even of the absolute and the omnipotent becomes perfectly void, and indistinguishable from zero. To demand that the absolute be utter indefiniteness and emptiness, in order that it may be the source of all definiteness and fullness, is to make even its existence a limitation. This overstraining of the term defeats itself. It cancels the absolute as a reality, and leads to the attempt to construct both the living God and the created universe out of nothing. The claim that definiteness is a limitation, is based on that etymological conception of the infinite to which we have so often referred. Logically, even existence is a limitation; for, instead of embracing, it excludes non-existence, and thus fails to fill up the

whole sphere of the thinkable. But such logical limitation is no real limitation. In discussing pantheism, we found that the claim that all determination is negation and limitation is entirely false, except where a true disjunctive judgment applies. But in any other case, this claim is true only in a purely formal sense. Thus we can always affirm of *a* either *b* or non-*b;* and to affirm *b* is equivalent to denying non-*b*. But non-*b* is no positive predicate; it is only the absence of the positive predicate, *b*. Thus to affirm knowledge of God is to deny non-knowledge; to affirm power is to deny non-power. In this sense only is it universally true that all predication is negation. But these negations are such only in form. They exclude nothing real from the subject. In truth, they are but the double negatives which make an affirmative.

Perhaps the emptiness of this claim, that a definite mode or law is incompatible with the essential activity of the absolute, may be best seen in a concrete case. Thinking is governed by the laws of thought. These laws are nothing which is external to the mind, or which exercises any compulsion upon the mind. The mind does not feel them as a yoke or a limitation. Our lack of insight, and our inability to trace all the results even of our simplest intuitions, we do feel as a limitation; but the laws of thought themselves are never felt as such. The reason is, that they are essentially only the forms of the thought-activity, and are reached as formal laws only by abstraction from the results of thinking. The basal fact here is a thought-activity; and reflection shows us that it has certain forms. These forms are

next abstracted as laws of thinking; and finally, these laws are imposed upon the mind as a kind of external sovereign. Then the mind is said to be subject to the laws of thought; and thus the fancy arises that possibly these laws are hinderances and limitations to knowledge. But in this entire process we are merely the dupes of our own abstractions. No one upon reflection can regard the laws of thought as in any true sense limitations of the mind. They are simply the essential modes of all mental manifestation. They are not powers of any sort which rule the intellect; they simply express what the intellect is. Probably habit has much to do with our confusion at this point. We are used to thinking of law as implying external compulsion; and thus we unconsciously import this thought into our conception of a being's essential law, which is never any thing but an expression of what the being is. In this way the fancy arises that essential law is a limitation. The implications of words are a constant source of error. As the notion of a nature commonly carries with it the thought of a mysterious background, so the nature of law is generally connected with the thought of necessity and compulsion. Both implications are misleading in the present case, and we must guard against them.

The positive outcome of this discussion is, indeed, very small. The aim was to secure the best expression for the relation of God to mankind and ethical principles. All propositions which view them as in any way a product of volition, human or divine, we have rejected as not merely absurd, but contradictory. The opposite doctrines, which view these principles as having an

existence independent of God, we have also rejected. The view which founds them on the nature of God, transforms itself, upon examination, into the statement that they are properly the fundamental laws or modes of the divine activity and manifestation. As such they are as changeless as God himself. We deny, then, that God can either make or unmake truth and right; not, however, because they exist independently of him, but because he cannot deny or contradict himself. The notion is essentially absurd; for a contradiction is nothing. The expression of a contradictory phrase is not the expression of a thought, but of its absence. The notion that such a phrase may be made to represent a fact rests entirely upon a play upon the word omnipotent, or almighty; and is sufficient to convict one of mental flabbiness. To the question whether God may not have other and ineffable modes of manifestation, we reply that the ineffable is no subject for discussion. Both affirmation and denial would be empty. For us God is a spirit who is essentially righteousness and wisdom; and all laws of his activity, which are essentially unrelated to these factors, are only words without any corresponding thought. Spinoza, in the beginning of his speculations, affirmed that the infinite has an infinity of essential attributes, of which, however, we can conceive only thought and extension. But before long it became clear that all these attributes were only words, and, therefore, empty of any real affirmation. We should reach the same result here, if we attempted to speak of ineffable laws of the divine activity, other than those of reason and right. To the question whether

God may not change even the fundamental laws of his being, we reply that this is (1) to ask whether God can contradict himself; and (2) to reaffirm in a new form that truth and right are products of the divine volition. We have to content ourselves with saying that God is the foundation of truth and righteousness, in that rational and ethical principles are the essential laws of his action. Further than this we cannot go; and the attempt would only result in deceiving ourselves with logical distinctions mistaken for things. Questions concerning the order of rank among the faculties are insoluble even for human psychology. Fichte made a great effort to deduce the intellect and the will from a moral root. The destiny of man is to be moral; and to be moral, he must have intelligence. Fichte positively thought any thing deduced when he had shown that without it a moral system would be impossible. The mystic may, also, believe that the essence of God is love, and that all which God is in attribute or action, flows necessarily from love as the divine essence. But this is not a deduction of the divine wisdom, for the love which does this is already a seeing, knowing love. It perceives its goal and the means of realization. Nevertheless, we must be careful not to make our mental experience too exact a standard for the divine mind. With us, for example, volition often comes only at the end of a long debate between opposing possibilities; and action must wait for opportunity. Thus the will and intelligence are made to seem separable; and the being is split up into independent faculties. But in no case are the faculties more than modes of

the being's manifestation. An intelligence without will or feeling is as impossible as a will without intelligence. They are inseparable manifestations of the one living spirit. It is also plain that those features of our experience which we have just mentioned, cannot be thought of in connection with God. With infinite goodness to prompt, infinite wisdom to perform, there can be no hesitation in choice, and no delay in execution. Thought and act are contemporaneous, and move on together in indivisible unity. The living God is supreme reason and righteousness in eternal act and self-realization.

Our claim that God does not make reason nor obey reason, but is substantial reason, will, perhaps, be allowed; but the claim that he is substantial goodness and righteousness is open to two objections. One is a difficulty of moral theory; the other is drawn from the existence of evil. We consider them in their order.

After all, it will be urged, we have made righteousness constitutional with God, which is a moral contradiction. Righteousness and unrighteousness are purely matters of the will, and lose their essential characters when viewed as an outcome of the nature. Yet we have declared ethical principles to be the laws of the divine activity, and have further declared that God cannot reverse them. They are, then, necessary; or if we dislike that word, they are unconditional and unchangeable facts. Hence God is bound by himself. He is, then, righteous not by an act of will, but by nature; yet natural righteousness is a contradiction in moral science. We have reached utter determinism.

If we are to talk at all upon this subject, it can only be in terms of our own experience; and it is hard to avoid a feeling that this matter lies beyond human knowledge. Still, as the objection is raised, we may point out that the statement just made is not entirely free from confusion. In the first place, it confounds right action with ethical principles; and it also confounds essential, with volitional, activity. In speaking of a being's law, we were careful to define it as the order of its essential activities. In a free being there is one series of manifestations and activities which express what the being is; and there is another series which expresses what the being chooses to be. The order of the first series we call its nature, its constitution, its essential law. Now in declaring ethical principles to be the laws of the divine activity we had this series in mind; and hence we declare them to be unchangeable expressions of what God is. But the will, also, has a work; and the question of regarding these principles in volitional activity is not decided by the nature, but remains a subject of choice. Certainly, the notion of an unchangeable nature, or essential law, cannot be more deterministic in the case of God than in the case of man. Man, as well as God, is bound by himself. In the human mind, also, rational and ethical principles are primarily not truths, but laws of the spirit's activity. They are beyond the reach of our volition; and in so far, we are absolutely determined. The determination, indeed, is not by external agents, but in our own being. Yet this realm of changeless fact, or of necessity, if one prefer it, is not incompatible with another realm of free-

dom. The laws of reason are absolute, but it is in our power to reject them and choose the irrational. They do not control us completely, unless the will, or rather the soul, accepts and ratifies them. Ethical principles, too, are forever secure against all overthrow; but that does not compel obedience. It is in our power, not indeed to unmake them, but certainly to flout and reject them. Here, again, an act of freedom is necessary —an acceptance and ratification—in order to give these principles the sovereignty which is their due. The highest form of human freedom is not to be found in our subordinate acts whereby we change or resist external nature, and least of all is it to be found in acting against reason and right. The highest act of the free soul is the acceptance of our true nature, or the choice of right reason to be the law of our entire being. It is sometimes urged that God cannot be free, because with infinite wisdom and goodness there can be but one outcome; but this objection strangely fancies that freedom consists in doing the unrighteous and irrational, instead of in freely accepting and realizing what rational and ethical principles demand. Schleiermacher defined moral action to be the imposing of reason upon nature; we regard it rather as the imposing of reason upon one's self. But what is thus a fact with man must be allowed as possible with God. We view the divine righteousness, therefore, as no constitutional necessity, but as the ceaseless ratification, by the divine will, of those rational and ethical principles which are founded in the divine nature. The divine nature expresses what God essentially is; the divine character expresses what

God chooses to be. The claim, then, that our doctrine leads to determinism we regard as untenable.

The objection based on the existence of evil is a more serious one, for the problem of evil admits at present of no complete speculative solution. That there is a perfect solution is a matter of faith, and not of knowledge. Nevertheless it may be well to point out that the denial of the divine benevolence is not so absolutely necessary as is often taught. The belief in the divine goodness and love is not born of a study of physical nature; it is based on conscience and the heart. Love and justice are the most reverend qualities in the universe, and the human mind, haunted by the idea of the perfect, has never been able to believe but that these principles must exist in their highest form in that infinite being from whom all realities and all principles, whether of truth, or right, or beauty, have flowed. The empiricist, who fancies that we learn every thing from external nature, is at a loss to understand this, and he loses patience that men should have such absolute faith in the divine love and justice in the face of a world like ours. But as he never loses confidence in his own philosophy, he next proceeds to explain the common faith as mental abjectness produced by a worship of mingled fear and fawning. No one has had the courage to question this belief, and at last it has settled into an article of faith that God is good; while all the time the whole creation groans in horrid pain and torture, such as a devil would hardly have the heart to inflict. To a diatribe of this sort, the philosophical theist listens with great interest,

both because of the innocence and because of the earnestness of the speaker. When it is done, he replies that in the face of all these facts he has taken up his faith, and in their face he will hold it fast. He does not go to external nature to be taught that God is love. The only claim he will allow is, that while the world cannot prove the divine goodness, possibly it may disprove it. The question, then, is this: Are the facts of nature and life inconsistent with the belief that God is good.

The early philosophies and extra-Christian theologies generally explained the problem of evil by the doctrine of a good, and an evil principle in ceaseless conflict. In accordance with the moral and rational instincts of the soul, the good principle was always viewed as the stronger of the two, and sometimes it was viewed as sure of ultimate triumph; but thus far, the evil principle has opposed a successful resistance to its universal sway. Even in very recent periods this ancient dualism has found favor with some speculators who have abandoned Christianity. But in general, Christian monotheism has overturned this view, except so far as a rebellious will in a created being is a dualism. The result has been that the ancient war between the good and the evil principle has been displaced in theory by the notion of an antimony between the divine power and the divine benevolence. We cannot maintain, it is commonly said, that God is both almighty and good. Whichever attribute we choose, the other must be abandoned. As a result of this conviction, it has been the fashion since the time of Leibnitz to explain evil by saying that God could not help it. A government by

general laws necessarily implies individual hardship; yet the system is not only good on the whole—it is also the best possible. The eternal truths of reason, and the invincible might of logical sequence, forbid the system's being other than it is. In our shortsightedness we fancy that some particular feature could be improved; and so it could, as an isolated thing, but not as a part of the whole. Nothing is single, and nothing exists for itself alone. Every thing is bound up in infinite relations to all co-existences and sequences, so that its conditions could not be changed without injuriously affecting the good of the whole. The petty present gain, then, must be paid for by a greater loss elsewhere in space or time. It would be losing both vessel and crew to save a single cabin-boy or scullion.

In criticising this view, one must sympathize with its protest against overstraining the meaning of omnipotence. The meaning of this word cannot be determined by its etymology, but by reason only; and reason declares that contradiction and absurdity cannot be realized in existence by any power whatever, and for the simple reason that they express nothing but the conditions of mental palsy. The one who utters them has said, and straight unsaid, and thus has canceled all meaning. It is the irrational imagination only which is disturbed with the notion that proper contradictions express some possible existence. So far, then, as the non-existence of evil can be shown to involve a contradiction, in so far is it justified. Unfortunately this solution is clearly applicable only to the problem of moral evil, considered as a necessary possibility of a free sys-

tem. That the non-existence of pain in its present degree, or even its utter absence, involves a contradiction, or runs counter to some eternal truth, is a proposition which is in sad need of proof. So far as we can see, pain in the animal world is the outcome of purely contingent arrangements. Whatever good purposes toothache, and neuralgia, and pestilence, and fang, and venom, and parasites may serve, it is certainly sheer assumption to say that any eternal truth is to blame for their presence, or would be damaged by their absence. There is no relief in this direction. These facts have all the marks of purpose, and it only remains to look for some justification in their consequences.

But before passing on, we must protest once more against that contradictory notion of a best possible system. We have before pointed out that the notion of a best possible finite system is as absurd as the notion of a largest possible number, or a largest possible bounded space. Leibnitz has certainly led speculative thought astray by his adoption of this untenable conception. No theist, therefore, is under obligation to prove that the present system is the best possible, and for the simple reason that there is no best possible finite. As Plato taught, there is but one best possible, and that is God himself. Of any finite system whatever the questions would be possible, Why thus, and not otherwise? Why now, and not then? Why on this plane, and not some other? Why so much, and not more or less? With regard to our own system, we can ask, Why begin in the germ, and not full grown in every faculty? Why live sixty years, and not six hundred? Why not

have ribs and nerves of steel, instead of the fragile ones we have? Why is any thing as it is? All questions of this kind are utterly insoluble, and should be left to debating youths and philosophers of the phrenological type. To ask them betrays a certain mental immaturity. Certainly no grown-up thinker of average reflective power will long consent to busy himself with such problems. We may, however, expound this notion of a best possible system in another way. In itself the phrase is essentially ambiguous. We may judge a system by its outcome, and this outcome may be either quantitatively or qualitatively different from that of other systems. In the former case, the system with the largest outcome is the best. In the latter case, the system with the highest kind of outcome is the best. Yet this qualitative best is also quantitative in that it may vary in intensity, and also in extent; and hence the notion of a best possible finite system, even when taken qualitatively, is a contradiction. In addition to this ambiguity, another is found in the fact that a system may be called good or bad, not with reference to the quality of the end, but with reference only to the way of reaching the end. We may regard the system as an instrument, and leave ends out of sight. There is no contradiction in the notion of a best possible instrumental system, for the perfection of such a system is determined solely by its fitness for its proper work. When an instrument exactly corresponds to its purpose, it is perfect. In this sense a very imperfect system, absolutely considered, may be perfectly adapted to the work assigned it. Even defects may be perfections; as

in the case of the eye, the shortcomings of the normal eye as an optical instrument, are positive advantages in it, considered as an eye. Thus we see that the phrase, best possible system, is essentially ambiguous, and in its obvious meaning is contradictory. All, then, that can be required of the theist is, to show that the actual system is not incompatible with a rational belief in the divine goodness. Finally, we do not recognize the need of limiting either the divine power or benevolence to account for unmoral evil. We believe it much more rational to confess that we have no sufficient data for the speculative solution of this problem. When, then, belief in the divine benevolence seems to conflict with belief in the divine omnipotence, except always in the case of contradiction, we limit neither, but decide that the solution of the problem lies at present beyond the horizon of the human mind. Meanwhile, though clouds and darkness are round about Him, we think it rational to hold that righteousness and judgment are still the habitation of his throne.

Having thus admitted the impossibility of a theoretical demonstration of optimism, we cannot be suspected of being blind to the shortcomings of the optimistic argument. We next proceed to examine the pessimist's attack upon the goodness of the actual world. The pessimistic argument, like the optimistic, is very apt to drag in considerations drawn from the notion of a best possible system. All these we rule out as indecisive, even when not absurd. Further, the pessimist is always tempted to overstrain the notion of omnipotence, so as to make it able to accomplish the impossible and the

contradictory, as well as the possible and the consistent. We find this tendency in his unwillingness to allow the claim that evil may be a necessary means for securing the good. He says that the necessity of employing means of any sort, especially of a severe and painful kind, only proves that the Creator is limited, and cannot have what he wants by direct exercise of power. Another grave fault of the average pessimist is, to deal with pain in the abstract. He heaps up all the misery of all beings, past, present, and future, and forthwith makes a sum so great as to hide all well-being from his vision. Thus he resembles the man who should heap up in one thought all the sickness of the world, and should become so confused thereby as to conclude that health and soundness nowhere exist. The very large sum-total of sickness does not prove that the earth is only a great hospital, or a festering lazar-house. On the contrary, the race has always been in tolerable health. The pessimist is apt to forget that pain in the abstract is nothing, and has existence only as felt by sensitive beings. If, then, the universe is a miserable universe, it can be so only as the beings living in it are consciously miserable. This point can be decided only by appeal to consciousness. We have in this abstract dealing with the question a parallel of the mistake common in discussions of future punishment. There we ask ourselves, Could God be justified in creating a being who he foreknew would persist in sin, and thus fall into endless punishment? Is he not bound to restore every one to happiness before the great cycle of eternity shall have rolled away? From this abstract stand-point,

the case seems entirely clear; and we even advance at times to declamation against the blasphemy of the opposite thought. But when we take another stand-point, the certainty grows less. If one should say, I am a mature, rational, and free being. The divine love for me has been manifested in the most affecting ways. The divine pardon has been offered me on the sole condition of forsaking sin. Nevertheless, I choose to disregard the laws of God and of my own soul. For God is under absolute obligation to save me from myself, and there can be no vindication of God's love and righteousness unless I am finally saved. If I throw myself away, even with my eyes open, God is a monster and an omnipotent devil. He had no right to make me free, unless he intended afterward cunningly or secretly to cancel my freedom, and make me at least an automatic saint. If one should speak thus, he probably would not find a single conscience to agree with him. It is doubtful, indeed, if any one to whom years and light have come, would dare to make this claim for himself. It is strange that the claim which seems so tenable when made in the interests of an abstract nobody, is one which none of us would have the face to make for ourselves. But if we cannot maintain the claim in the first person, and if we should hardly care to make it for the second person, what becomes of it as applied only to the third person? Life and death are both in the first person. But just as the abstract person must be dismissed in this case, and in his stead the first person must be dealt with, so in the case of the misery of being we must cease reflecting upon the ab-

stract integral of pains, and ask for living beings to come forward and testify. The abstract man cannot be miserable, but only concrete, conscious men. Now how many are there who, apart from their own folly and sin, have found life an evil rather than a good? How many, apart from all consideration of good or evil to come, would gladly abandon even this life? How many are there whose natural lot has been such that they would prefer non-existence? Yet such, if such there be, are the only proper pessimists. Others may fancy that God should have done more for them than he has, but these are egoists rather than pessimists, and what they need is not so much argument as a keener sense of shame.

We consider, next, some specific objections. The existence of pain of any sort is objected to as inconsistent with the divine benevolence. No thoughtful person will venture to affirm that the mystery of physical pain can be entirely cleared up; but it can certainly be lessened. On the other hand, no one has a right to declare it an outcome of malevolence, unless he has a complete knowledge of the system of things. Pain in general has a double function. It appears either as a warning and an incentive to development, or as the consequence of transgressing some condition of existence. As a warning, its function is plainly beneficent, and as an incentive to development, things being as they are, it is plainly necessary. There is no assignable way of preserving organisms from speedy destruction without making them subject to possible pain. Again, if pain did not exist in

possibility, it is impossible to see what security we should have for either physical or mental development. Even the animal world would lose itself in a mollusk flabbiness, as devoid of meaning as it would be of beauty. To this the pessimist will reply, that God should have made things perfect from the start. Mind and body should both have been complete, and the dangers and risks of development should have been avoided. He is willing to allow that, as things are, pain and privation have in general a beneficent function. Exercise, resistance, struggle, and the spurs and finger-posts of pain, are all necessary for the development of such beings as actually exist. But why are things as they are? Why does not another kind of beings exist? Above all, why does not God interfere to prevent all ill, when he might just as well do it as not? Mr. Mill gives the extremest expression to this feeling in the following passage:—

"For, how stands the fact? That next to the greatness of these cosmic forces, the quality which most forcibly strikes every one who does not avert his eyes from it, is their perfect and absolute recklessness. They go straight to their end, without regarding what or whom they crush on the road. Optimists, in their attempts to prove that 'whatever is, is right,' are obliged to maintain, not that Nature ever turns one step from her path to avoid trampling us into destruction, but that it would be very unreasonable in us to expect that she should. Pope's 'Shall gravitation cease when you go by?' may be a just rebuke to any one who should be so silly as to expect common human morality from na-

ture. But if the question were between two men, instead of between a man and a natural phenomenon, that apostrophe would be thought a rare piece of impudence. A man who should persist in hurling stones or firing cannon when another man 'goes by,' and having killed him, should urge a similar plea in exculpation, would very deservedly be found guilty of murder."*

It is curious what different opinions men hold. When the Christian teaches a doctrine of divine providence, according to which God is in living and loving contact with every being in the system, and is caring for all, and guiding all to the best results, his doctrine is often denounced as a miserable anthropomorphism; but here Mr. Mill appears with a demand that gravitation shall be suspended, fire shall not burn, water shall not drown, cold shall not freeze, and no natural law have its proper effect, if in any way we should be injured thereby. Some speculators, especially of Mill's own school, will not allow God to suspend a law of nature in order to attest a divine revelation to man; but if laziness or blockheadism bring one into trouble, God must hasten to shield him from the consequences, under penalty of being charged with murder, etc. It is difficult not to detect an odor of insanity in the passage we have quoted, for certainly it would be impossible to imagine a more contemptible system than one in which such perpetual miracle should occur. It would be a universal nursery for the perpetuation of helplessness and incompetency. Surely if any one will criticise the universe, he ought to suggest improvements instead of

* "Three Essays on Religion," p. 28.

disastrous modifications. Yet the improvements suggested by various critics have always been such as would prove calamitous if adopted. In this state of the case the critics fall back upon the suggestion that every thing might have been quite otherwise to advantage. But such a statement is verbal, and belief in the divine goodness is not seriously endangered by these attacks.

The amount of evil in the animal world, apart from man, is commonly greatly exaggerated, owing to the influence of what is called biological anthropomorphism. Evil in this realm is purely a question of pain; and there is no proof that the lower animals endure any thing like the pain which human beings suffer. On the contrary, a multitude of facts indicate that even the more highly organized animals are far less sensitive to pain than men are; and no one can see a wasp continuing to eat after its waist has been cut in two, and believe that it suffers much from the operation. Keen senses and keen sensibility are by no means necessarily connected; the latter seems reserved especially for man. While no one would care to maintain that there is no excess of pain among the lower animals above what is needed to warn and develop them, it is still a grave error of physiology to attribute to animals any thing like human sensibility. With the simple organic forms, sensibility is probably a vanishing quantity. Moreover, even with men, who live rationally, the amount of physical pain is very small, whether in living or in dying. It is in our personality, in our power of looking before and after, and, above all, in our affections and conscience, that we find the chief source of woe. If these were away, our

physical pains would be very small, after deducting those which we bring on ourselves. Where these are away, as in the case of the animals, and where the physical sensibility is certainly much less, the amount of physical evil is not so great as the pessimist would have us believe. So far as pain in the animal world tends to the preservation and development of life, it is a good, and testifies to divine beneficence. So far as it seems motiveless and malignant, the pessimist is entitled to his conclusion only as he shows, (1) that it is without any justifying outcome; and, (2) that it is really the work and purpose of God. Man has wrought evil and devastation in nature, and it is an entirely possible thought that there are more potent energies of diabolism than the human will. Of course it will be said, that allowing this, it only removes the difficulty one step farther back. We shall deal with this question hereafter. For the present, we content ourselves with pointing out that the amount of necessary and unrelieved physical evil in the animal world is far enough from warranting a denial of the divine benevolence.

In considering the case of man, we deal first with the natural evil to which he is subject. The human soul, as it exists, can be made perfect only through struggle and suffering. Nowhere else have these elements so beneficent an office as in the case of man. The higher manifestations of character spring almost entirely from the soil of sorrow. If we should strike out from human history the heroic and saintly characters which have been born from suffering, all that is noble and reverend in it would depart. If we should strike from literature

all to which sorrow has given birth, its inspiration would perish forever. Even the presence of death has brought a solemn tenderness and dignity into human affection which had otherwise been impossible. Virtue, too, acquires sturdiness only from resisted temptations; and even mind itself grows only through obstacle and resistance. But it will be objected that all these things might have been made outright, and thus the struggle and the pain would have been escaped. To which we say, (1) It is by no means clear that they could have been created; and, (2) It is very far from certain that the well-being would have been any greater. For well-being is measured only by happiness, and not by quantity of attainment or possession. Bodies might easily have been made in their mature form; but it would be an incalculable loss to humanity if the ministry of childhood were wanting. It is, also, conceivable that the mental faculties should begin in a far more developed stage than they do; but it is not clear that the outcome for well-being would have been much greater. There is a distinct demand in human nature for self-development; and hence no one has a tithe of the enjoyment in things or thoughts inherited, which he has in things or thoughts produced by himself. Even the child finds more delight in the crudest toy of his own manufacture than in the finest product of the shops. The joy of intellect does not consist in mere knowing, but in conscious development and growing self-possession. Mental good does not consist in reaching some fixed altitude, but in ever moving onward. Concerning the relation of physical nature to man, it must be said that its per-

fection consists in its imperfection. A nature which furnished no obstacle to man, but spontaneously supplied all his wants, would not only be paralyzing, it would be intolerable. A perfect physical world would be for human purposes a perfect failure. We want something to conquer and subdue; and in such conquest we win vastly more delight than from any amount of inactive gratification. We also want something to criticise. Over-against the stupidity of nature we want to put our conception of a better; and we seek to force nature to accept our improvement. To the healthy mind there is no more contemptible conception of human destiny than simply immortal good feeling. No true man wants to have good showered upon him; he wants only a fair chance to win good for himself. The beggar is willing to live on charity; but the man insists upon earning his bread.

Even in the case of the lower and constitutional goods, the mind is dissatisfied unless it has a share in their production. In the case of the higher goods of character, the mind will not recognize them as goods at all, unless they are its own product. Created or automatic sainthood it does not understand. Here is the field for the imperial will. And whatever of hardship may be necessary for the development of good character the soul cheerfully accepts as the condition of its chiefest blessing. The high good of independence is impossible to contented beggary; and for the reason that the two notions are contradictory, except in a lying consciousness. So the supreme good of virtuous character is incompatible with any thing but self-con-

quest and self-determination. For the great good in moral development is not so much the point reached, as it is the self-development in accordance with the perceived laws of righteousness. This highest of goods cannot be created, because that is a contradiction. It must be won, or conquered, by every being for himself. The goods, then, which the human mind in its normal condition most craves and venerates, are not passive pleasures of any sort, but goods of the active nature, and the very notion of these implies obstacle, resistance, and hardship, as their necessary condition. Moreover there are good reasons for believing that a perfectly friendly nature would be less favorable to moral development than a partially hostile one. The theist believes that the immortal soul is rich only in itself and God. The temporal and the earthly furnish the conditions of moral action; but there is a strong tendency in the soul to forget itself and God in its surroundings. To correct this, a certain hostility of nature is necessary. Thus only can the soul be thrown back upon the spiritual, and the divine, and the eternal. This general feature of our system, therefore, is a proof of the divine benevolence. It will be seen otherwise only to the epicurean mind, from which all that is noble and reverend has departed. In addition, the theist will also hold that great physical calamities may at times be introduced for the express purpose of checking moral evils of corresponding magnitude.

But the reply will be made, that these general considerations do not remove the fact that evil is overdone in connection with man. There are frightful evils

which develop nothing, but rather crush out both faculty and possibility. They also reproduce themselves, and like some malignant venom spread from man to man, and from generation to generation, poisoning soundness and blighting life with death. The laws of heredity and of social solidarity are leagued for human ruin. By the former the sins of the fathers are visited upon the children unto distant generations: by the latter, whole classes of men are handed over to ignorance and destitution of all that makes up a truly human existence. It is hardly possible for multitudes to be human beings, owing to the miserable arrangements of society. But none of these things are good. Their only effect is blighting and destructive.

All this and vastly more is true. But it must be pointed out that none of these results are necessary consequences of the system. They are implied in it as possibilities, but the actual outcome is determined by man himself. The chief ills under which man suffers are the results of his own doing. Even our physical ills, the physicians tell us, are mostly the product of our artificial and improper modes of living. Few bodies are engines of torture until physiological law has been outraged and violated, either by the person himself or by his ancestors. When used rightly, the body is a willing, faithful, and effective servant of the soul. Only as it is abused does it break out into rebellion. The law of heredity, too—that fruitful source of frightful ills—is in its natural operation most beautiful and beneficent. It is the only thing which makes our children truly our own, and knits the generations together

in vital unity. With no law of the present order would we longer refuse to part than with this, if men were what they ought to be. Human sin it is which has changed this law into a curse. And so with the law of social unity. Universal community of interest, all for each and each for all, is a divine ideal. Absolute self-sufficiency of the person, and indifference toward others, is not an ideal state for either God or man. But the mutual interdependence which this ideal implies makes it possible that this law should be the prolific mother of woes. But the system is not to be charged with the results of its abuse. The benevolent purpose of the Creator is thwarted by the creature; and the creature alone is to blame.

This brings us to the problem of moral evil. The existence of sin has been viewed by some as a reflection on the divine righteousness and benevolence. This view also arises partly from overstraining the meaning of omnipotence, and partly from denying the freedom of the creature. There is no vindication of God possible on any deterministic theory. Such a view makes him the real sinner in all sinning; and the apparent sinners are but the cunning automata through which the omnipotent sinner works. But we leave this point for the present, and point out that moral evil cannot exist if there be no moral order. In its very notion it is a departure from moral order; and hence necessarily implies it in the system. Sin in the system, therefore, implies righteousness in the founder of the system; and the sin appears as a rebellion against the moral law which has

been legislated into the very nature of things. If the system were not essentially founded in righteousness, there could be no proper sin. Where there is no law, there is no transgression. Where there is only unrighteous law transgression is not sin, but virtue. Sin is impossible, then, where righteous law does not pre-exist. But how can this law be transgressed? Why does not God prevent it? We answer: A free system is better than a mechanical system; and freedom necessarily implies the possibility of sinning. This possibility, then, is given in the fact of freedom. But could not God so act upon the will by some hidden constraint of motive, as to lead it in any given direction? Some hold that God does so act in every case, and thus becomes properly the author of sin. This device of a secret constraint is a favorite method for reforming incorrigible sinners and devils. But in truth, it is only a roundabout way of canceling freedom, and a return to the notion of automatic sainthood. It is a demand that the free being be degraded to an automaton and mechanically rearranged. If it be asked, How could sin originate in a state of innocence? the reply is easy: We have a complex nature, every part of which, in its place, is innocent and becoming. Moreover, our desires and impulses are in themselves unlimited and also unmoral. But the health of the soul demands that an ideal order be maintained in it; and morality consists, not in introducing new factors into the soul, but in ruling ourselves according to the soul's ideal law. At bottom, sin is allowed disorder. It is permitting the soul to live at random. It is the acquiescence of the will in a usurpation of supreme rule by the

lower powers. But the possibility of sinning does not necessarily involve a taint or evil tendency in the soul.

But not all these considerations suffice to fully explain the facts of life. If the consequences of sin were confined to the sinner, there would be less difficulty in the problem. But as it is, the innocent suffer and perish as well as the guilty. Why was sin permitted to have such terrific consequences? We may admit the goodness of the laws of heredity and social solidarity in a righteous world, but their effect is so blighting and so unjust in a sinful world, that it seems as if they could not be excused. To this there is but one sufficient answer. The present life is a time of probation; and as such, it is a time of abnormal moral adjustment. But there is another life in which every one shall be judged according to that which he hath, and not according to that which he hath not. There men shall take their places according to their moral character; and there the Judge of all the earth shall do the best, for saint and sinner alike, which the eternal laws of righteousness will permit. To one who has this faith, life presents indeed a dark problem; but to one who has it not, blindness is the only refuge from despair. There is no use in further argument. We admitted at the start that a speculative solution is impossible, and we now repeat the admission. We do not agree with the pessimist, but our chief reason is, our faith in a future life. If he cannot advance to this faith, we shake hands and separate. He chooses the gospel of despair; we choose the gospel of hope. The future must decide between us.

## CHAPTER X.

### THE SOUL: SPIRITUALISM OR MATERIALISM.

ATHEISM is commonly allied to materialism and physical fatalism; and, conversely, these doctrines rarely fail to pass into atheism. On the other hand, the belief in an active, substantial soul, implies a belief in a personal God. If the spiritual philosophy can be justified, most of the objections to theism disappear. Hence the propriety of discussing the subject in the present work.

The tendency of the uncritical mind is to lose itself in its objects. Hence it finds nothing so real as the objects of sense-perception. The typical conception of the real is the tangible or visible. When this tendency is uncorrected by either reflection or instinct, we have the coarsest type of materialism. From constant dealing with the object, the subject at last forgets that there is and must be a subject of knowledge. Because of this objective tendency of the unreflecting, the materialistic argument seems very strong to crude common sense. We know nothing of mental phenomena except in connection with a body. Mind and body begin together, advance together, decay together, and, so far as our observation goes, they perish together. In fact as well as in poetry, the grave remains the undiscovered country from whose bourn no traveler returns. There

is nothing in experience to suggest that mind and body are separable. During life, the mind is most rigorously conditioned by the body; and we never find it apart from the body. What conclusion, then, can be more probable than that the mind is simply a function of the organism? By this is not meant that mental phenomena are material, or that they can be assimilated to any mechanical phenomena whatever; it would never occur to any sane materialist to teach such a doctrine. His theory is, that mind is only a general word for mental phenomena; and that these phenomena result from physical organization. They are the melody of the instrument. They are the rainbow which is painted on the dark cloud. And as the melody is unlike the instrument, and the rainbow is unlike the cloud, so mental phenomena are totally unlike the dark physiological processes which underlie them. But as the melody dies when the instrument is broken, and the rainbow vanishes when the cloud is shed; so mental phenomena disappear when the organism is shattered. Mind does not belong to the substances, but only to the phantoms of the universe.

This argument seems to be in perfect harmony with common sense; and the inductive canon, known as the method of concomitant variations, appears to justify the conclusion. Yet the superficiality of the argument is evident. Materialism always starts with the assumption that matter is a perfectly clear notion, and that it is known as a noumenon. It is an almost impossible insight to the materialist that matter as noumenon is a purely metaphysical and speculative notion. It rarely

or never occurs to him that his atoms and molecules are as purely matters of inference as are God and the soul. Accordingly, he insists that there is no telling what matter can do. Every day it is growing in mystery and capacity. Hence, he says, it is the height of rashness to say what matter cannot do. We see it explaining the organism; and we see nothing but matter in the organism. The simplicity of this position both disarms criticism and renders it unnecessary. We merely mention it to put the reader on his guard against the unconscious imposition which the materialist practices upon himself at this point. In truth, materialism is based less on observation than on a metaphysical theory; and its metaphysics are based on the imagination rather than on reason. It does not think in concepts, but in images; and its reasoning is a train of misapplied sense-pictures. In this respect materialism is still on the level of the brute mind; in which, probably, all seeming reasoning is but a semi-pictorial association of sense-experiences. The essence of superstition, also, consists in mistaking sense-images, with their spatial and temporal conditions, for thoughts and principles. In this respect materialism belongs to the family of superstitions.

We said that to unreflecting common sense the materialistic argument must seem very forcible. However, common sense lives more by instinct than by logic; and on this account it has never favored materialism. The word soul, occurring in all cultivated languages, and the content of the word, indicates a general belief that the soul is not a passing phase of matter, but an abiding essence. In its spontaneous language the race has re-

corded its verdict against materialism; and this fact constitutes a great presumption in favor of the spiritual philosophy. We proceed to the argument.

The positive argument for materialism is weak and indecisive. Apart from any opposing facts or arguments, it could never prove more than a possibility. This positive argument consists entirely in repeating the unquestioned fact that the body affects the mind. But this is no new discovery; it has been known and undoubted from the beginning. And the various discoveries of physiology in connection with the nerves and the brain, have no more significance than the general fact of interaction between mind and body. Confusion is very common at this point. Some one discovers that if some little nerve be diseased, or if some peculiar drug be taken, there may be an abnormal mental outcome. And such a fact is at once trumpeted abroad as a new proof of materialism. Yet such a fact reveals no new principle. It is only one further specification of the undoubted fact that the body affects the mind. The general fact means as much as any amount of detailed fact; for the detailed fact is but the general fact specified. Suppose it were proved that the brain acts in parts, or that the localization doctrine were fully established, materialism could find no more in such a fact, than in the general fact that, at present, the mind is conditioned by the brain. To say that the mind acts through the brain at all, is fully as materialistic as to say that it acts through certain parts of the brain. In seeing, the optic nerve is chiefly concerned. In hear-

ing, the auditory nerve is chiefly concerned. What is there more materialistic in saying that in some forms of mental activity, some particular part of the brain may be concerned more than some other part? A curious delusion seems to possess both the spiritualist and the materialist on this point. The spiritualist admits the general fact of interaction with great cheerfulness; but he forgets that a general interaction can exist only through a multitude of specific and particular interactions; and hence he grows nervous when he hears of some new doctrine about the brain. On the other hand, the materialist fancies that detailed and obscure interactions have vastly more significance than the patent ones with which we have always been familiar. Both views are plainly erroneous. The fact that rum or opium produce peculiar mental effects, or that when the brains are out the man will die, is fully as significant, as far as materialism is concerned, as the most occult facts of brain physiology. And this universal admission of interaction between soul and body renders the materialistic conclusion from it worthless. For upon any theory the same facts would exist. Those who believe in the existence of the soul never pretend that it is independent of the body, or that it can carry on its activities without regard to physical conditions. On the contrary, they clearly recognize that at present mental activity is conditioned by the body, and more especially by the nervous system. This being so, they expect the condition of the organism to affect the mental product. It is perfectly plain on their supposition, that the condition of the body must be a factor of the mental out-

come. If the machine be in order, so that it follows its proper law, and supplies the right conditions for the unfolding of mental activity, then we may expect a normal unfolding. But if the machine be abnormal, of course the mental phenomena must be disturbed and abnormal also. If the nerves should begin to storm the soul with strange and chaotic sensations, which should traverse and break up the accustomed order, the mind would be lost in hopeless bewilderment and insanity. If, on the other hand, the mind were in full possession of itself, but the nerves were disordered, the signals by which one mind communicates with another would become incoherent and meaningless. If, then, these facts were all, the result must be a drawn battle between materialism and spiritualism. The materialist would hardly be willing to allow this; but that only shows that he cannot distinguish between facts of experience and his metaphysical theory, that all being is material. But as this theory is, to say the least, sheer assumption, we allow it no weight as an argument.

The question is: How shall we account for the facts of the mental life? The spiritualist says, that we must assume an abiding mental subject. The materialist says, that we can explain it by the activities of matter. And here we repeat once more, that this is not a case of fact against theory, but of theory against theory. The materialist's matter is as much a speculative assumption as is the spiritualist's soul. Nor is the question, what we shall call the cause of mental phenomena; but, rather, how we shall think of it. A great difficulty of the materialistic doctrine is, that it makes more of the word

matter than of the thing. We have no definition of matter; and while the name is constantly repeated, the notion is left very indefinite. The spiritualist points out that matter, as commonly conceived, cannot be the cause of mental phenomena, because mentality and materiality are absolutely incommensurable. The essential phenomenon of matter is motion. The essential phenomena of mind are thought, feeling, and volition. By no possibility can these be identified, or can the latter be deduced from the former. To explain one phenomenon by another consists in identifying it as a special case of the other; and when there is no common factor, identification is impossible, as a matter of definition. Now if we conceive a brain composed of material elements, and conceive all kinds of shakings to take place in it, we see nothing but other shakings as the result. No matter how complicated or rapid these motions may be, they remain motions still. In short, the movable, as such, is only capable of motion; and motion is totally unlike thought. It is a matter of definition only, that the merely movable contains no explanation of mind. The complete unlikeness of mental and material phenomena makes it impossible to regard the former as phases of the latter. A small quibble is sometimes attempted, based on the double meaning of such words as light, heat, sound, etc. Sound is unlike the instrument, but is a product of it, nevertheless. The answer is evident. Sound, physically, is vibration either in the instrument or in the air. Sound, physiologically, exists only in the mind, and is not properly produced by the instrument. While we remain in the physical realm we

have only vibration following vibration, and no essential unlikeness. The same is true for the other words.

The modern materialist recognizes this difficulty, and proposes to escape it by a new definition of matter. Matter, as the movable, explains only motion; but may not matter as mystic explain mind? Mentality and materiality are, indeed, incommensurable, but both are phenomenal. Why may they not both be the manifestation of the same substance, so that what appears here as matter, appears yonder as mind? If by matter we mean only a swarm of little lumps, like grains of sand but very much smaller, of course it is impossible to get life and thought from them. But why may we not enlarge our notion of matter, and think of it as something higher and better than we have been accustomed to do? We think of it as something crude and groveling, and fail to notice the wonderful and mystic powers which it has. Among recent writers, no one has insisted upon this extension more strongly than Professor Tyndall. The notion that matter, as ordinarily conceived, can explain life and mind, he denounces as "absurd, monstrous, and fit only for the intellectual gibbet." At the same time he "prolongs his vision backward, and discerns in matter the promise and potency" of every thing. To the philosophical student, this doctrine is nothing new. He recognizes in it the hylozoism of the early Greek speculators, according to which matter is a plastic something with wonderful powers, which it manifests upon occasion. The doctrine is just vague enough to suit the materialist. By forgetting that atoms, if real, are individuals, the doctrine can be turned into pantheism. By

resuming the principle of individuality, we can pass back to atomism. By judiciously remembering and forgetting, we can be atomists and pantheists at pleasure. We can reduce every thing to molecular mechanics, and we can dilate on the unknowable "mystery of matter." By leaving the notion of matter quite undetermined, it is also easy to deduce every thing from it. We have but to assume that all being is material, and enlarge the notion to meet the exigency. If we only call it matter, we can rely on common sense, taking the word in its ordinary meaning; while by meaning something, no one knows exactly what, but at all events something quite out of the common, we shall be able to defend ourselves against the spiritualists. This indefiniteness is of great value in materialistic polemics. The argument is rather curious. We cannot tell what matter can do, therefore, it may well explain mind. After a moment's stay in the potential mood, nothing is easier than to pass into the indicative, and announce that matter is all-sufficient. The fact that the known properties of matter give no hint of an explanation of mind would seem to form a presumption that the unknown properties will succeed no better. A possible yes is also a possible no. But this simple fact never occurs to the materialist. The great art of materialistic argument at present, consists in appeals to the unknown possible, and in calling that unknown possible, matter. Matter will not explain thought and feeling, says the spiritualist. How do you know it will not? asks the materialist. Its known properties do not, of course, but its unknown properties do. And this is an expla-

nation! As if the debate were about a name, or as if one speculator had not as much right to the unknown possible as another. Every-where else explanation of one thing by another must rest upon what we know; but here explanation may rest upon what we do not know, and may pass for explanation still! Every other speculator must show some positive title before taking possession; the materialist moves in, like an intellectual squatter, and refuses to go without a writ of ejectment. Yet this dealing with fancied possibilities serves to amuse the materialist, and to confuse the simple-minded. Throughout this hylozoistic speculation, there run the baseless assumptions to which we have referred: (1) That matter is known as causal noumenon. (2) That all being is material. (3) That creation is impossible. It is further vitiated by the notion that the name is the thing in debate; whereas, since matter is an undetermined notion, we set out to determine how we shall think of it, in order to make it the sufficient explanation of the facts. The hylozoists forbid us to think of it as common sense does. It is the mystic and marvelous something, according to Professor Tyndall, which performs all the wonders of nature. It being mystic and marvelous, what shall hinder us from viewing it as intelligent, if the facts point that way? If we can tell what matter is only by observing what it can do, why may we not ascribe intelligence to it, if it acts intelligently? Certainly intelligence is a better explanation of intelligible action than any amount of mystical qualities. Here the hylozoist draws back, and thus shows the contradiction of his position. At one time he holds the vulgar notion

of matter, at another he holds the hylozoistic. It is perfectly clear that if we give no definition of matter except that it is the cause of nature, and explain mind by spiritualizing or mysticizing matter, the debate threatens to become a war of words. Indeed, this hylozoistic revival must be viewed as a scientific regress. It is useless to the theoretical physicist, as he stops with molecular mechanics, and does not ask how mechanics is possible. It is also useless in scientific explanation. There are two clear notions, mechanism and final cause, on which all rational explanation depends. Mechanism as the law of all spatial changes, and final cause as the determining principle of mechanism, afford the mind rest and rational satisfaction when a phenomenon is interpreted by them; and no other principles will be found sufficient. But hylozoism confounds both and leaves room for neither. It has no more value in psychology. It does not explain mentality, but by an act of violence posits mentality and materiality side by side in the same subject. This juxtaposition of incommensurable qualities is mistaken for an explanation. The hylozoistic revival is entirely due to the attempt to make matter all-embracing. By consequence, all principles and definitions are confounded, and the outcome is still greater confusion. "Mind-stuff" and "double-faced somewhats" are now playing an important part in materialistic arguments. The result is a school of philosophical mermaids, such as cannot be found this side of the earliest Greek speculation.

We shall gain nothing by further examination of the materialistic argument. In its best estate, it is less an

argument than an uncritical and infantile assumption. The largest possible conclusion of the argument, as we have seen, is the possible truth of materialism; but as the same facts are equally well accounted for on the opposite theory, the result thus far is a drawn battle. For the sake of progress, therefore, we pass to inquire whether there are any facts of our mental life which turn the scales in favor of spiritualism. And in discussing this question we limit materialism to some form of the atomic theory. When matter is viewed as one rather than discrete, it is not properly materialism but pantheism, or philosophic substantialism. With this understanding, we are willing to allow both the hylozoist's and the idealist's assumptions concerning the atoms. Even if we view each atom as having a soul, or as endowed with a kind of life and the most mysterious and wonderful powers, it is still impossible to understand the mental life without assuming a single and abiding soul. There are great capital facts of experience which cannot be explained on any other theory. There are the unity and possibility of consciousness, the facts of memory and reasoning, and our power of action. This last fact is often described as freedom, but the two notions are not coextensive. Determinism, as well as true freedom, is incompatible with materialism. For whatever can act, even though its activity be determined, is a true subject. It is not necessary, therefore, to insist upon proper freedom; a power of determined action is inconsistent with materialism. These general facts have long been urged by the spiritualist, and have never been explained away. In this strait of his sys-

tem the materialist contents himself with calling the argument an old one, as if an old argument might not be solid. Until it is refuted, therefore, the spiritualist will continue to urge it. We deal with the facts in the order mentioned.

The unity of the thinking subject is affirmed by many to be a direct utterance of consciousness. This is rather hasty. Consciousness does not tell us how we are made; and we cannot properly be said to be conscious of the falsehood of materialism. The unity of the thinking subject is less a deliverance of consciousness than a necessary condition of all consciousness. We shall return to this point hereafter; at present we call attention to some unquestioned facts of consciousness. Thus I think, I feel, I act. I exist to-day; I existed yesterday, and through all the past to which my memory reaches. No one can question these facts as they exist for himself. To deny them, or to throw doubt upon them, would plunge us into hopeless skepticism, and science does not lie in that direction. Now, wherever there is an act there is something which acts. Wherever there is a state, there is a subject of that state. Wherever there is thought there is a thinker. Now, I think; what is this "I" which thinks? The spiritualist says it is the unitary, substantial soul, which abides across the years, and gathers up its past and present experiences in the unity of its own existence. This view is so much like the direct voice of consciousness, that many fail to distinguish between them. It is in complete harmony with the facts of experience

and with universal common sense. The materialist denies that there is any substantial soul which thinks, feels, acts, etc.; but he is bound to tell us what does think, etc. He will say that the brain thinks, but this is not clear. The brain is not a unit, but an assemblage of atoms; and an assemblage, as such, is nothing. The reality of an assemblage is the elements which make it up. We are apt, here, to confuse ourselves with the notion that when several things work together they may do something for which no one of them is accountable. Of course, things may act differently in combination, but the act is still the act of the things, and not of the combination; for a combination is only the sum of the individuals, and the act of a combination is only the sum of the acts of the individuals, just as public opinion is only the integral of individual opinions. The effect must be distributed among the causes; and if there be any effect which is indivisible, it must be referred to a single cause. Hence, to say that the brain thinks, can only mean that the elements think which compose the brain. But which of them? Do they all think? Why, then, is not the ego many instead of one? Is my complete thought in each of the elements just as it is in each mind which thinks it? In that case we explain my thought by positing an indefinite number of thinkers, instead of the single thinker which the spiritualist affirms. But if my complete thought is not in each of them, what is meant by attributing a fraction of a thought to each? And how could these fractions be brought together to form a complete thought? The notion baffles comprehension, and still more, construc-

tion. But if all the elements do not think, but now one and now another, how does the second know what was going on in the first, so that it can take up the thread of conscious thought just where the other dropped it, and that, too, so deftly that mental continuity is in no way disturbed? How comes there to be any unity in our mental life on this theory? It must be remembered that these atoms are ontologically just as distinct as the persons in a crowd; and hence they contain no explanation of the unity of the ego. But as they appear to be substantial and abiding egos, why not allow our own souls to be such also?

But the materialist would hardly have the courage to attribute proper thought and consciousness to the elements. He thinks that in some way thought and consciousness may result without any substantial subject. Accordingly, he says that the elements do not properly think, although they are very mysterious; but when the elements are combined in certain ways mental phenomena result. These hang over the physical stream as the bow hangs over the cataract, but they have no substantial subject. Here, however, consciousness protests, and declares that the ego is the substantial subject of the mental life; but materialism assures us that consciousness is quite mistaken. The ego which seems to think, feel, and act is nothing but the sum of the phenomena, and never their source. In fact, there is nothing which thinks and feels; but there is thinking and feeling. The elements do not think, and the self is nothing. But this is so long a step toward utter skepticism that we hesitate to take it. If the self who

thinks is really not the determining subject of the thought, one can hardly trust the thought; that, also, may well be a chimera. But here the understanding protests that it cannot even conceive what is meant by thoughts and feelings without a subject. They are words which have a meaning only in connection with some subject which feels and thinks. Apart from this connection they are empty of all content. We have here a depraved form of scholasticism. Sensations, thoughts, etc., are only known as states or acts of a mind. The materialist breaks them from the only connection in which they have any meaning, and then parades them as the *prius* of the mind itself. Now, as the materialist will not allow the substantiality of self, and as thoughts must have a subject, the materialist can only return to the doctrine that the atoms think. But this brings back all the difficulties which beset the attempt to explain the unity of thought and consciousness from the action of a manifold. We pass over these objections, and point out that proper consciousness cannot exist at all without a unitary subject. The consciousness of an instant is a vanishing quantity; and if there were no means of summing up many states into one, consciousness would perish as fast as it is born. The fleeting state must in some way be fixed before consciousness is possible; and this can be done only by an abiding subject, which gathers up in the unity of its existence the states which else were lost. In any act of consciousness we find a composite of this kind. Present states, remembered states, imagined states, all enter into a single phase of consciousness. But these fall

hopelessly asunder, except as they are the states of a common subject. At this point both materialist and empiricist commit a grave oversight. They both speak of consciousness as a series or succession of states, and never raise the question how a series is possible, or how succession can be known as such. Succession can be known only by something which abides. We must be able to contrast the passing with the abiding before succession can be recognized. Hence, a consciousness which was only a succession could never be aware of itself as such. Moreover, succession is not a series. That things should really follow one another does not constitute them a series. They form a series only as the members of the succession are grasped in one and the same thought. The necessary condition, therefore, for the existence of a series is, that one and the same being shall grasp all its members in one thought. If the subject were composite, the series or the succession could never be known to exist. Hence, the many can exist, as such, only for the one. Apart from the unifying thought, the many is but a repetition of the individual. It is not number, but the unrelated unit repeated, and it becomes properly plural only in thought. Hence we say that not merely our consciousness of unity, but much more our consciousness of plurality, is impossible without the strict unity of the thinking subject. While, then, the materialist insists that our consciousness of our unity may be illusive, we point out that the unity of self is an indispensable condition of all consciousness whatever.

We pass next to the fact of memory. This fact, again, cannot be questioned without landing us in hope-

less skepticism. Now, physiology teaches that the body is incessantly changing, but none the less does the personality remain unchanged. I am the same person that I was years ago, and I now recall the events which then happened to me. Here is another fact which every theory must explain. Spiritualism explains it by saying that the soul is a substantial subject which has existed through these years, and which is able to gather up its parts and carry it with it. Materialism rejects this view, but none the less must it account for the fact. There is memory; what remembers? Consciousness says I, the abiding person, remember; but materialism says, there is no abiding self. What, then, does remember? Sometimes it says, the brain remembers; but this we cannot allow, for the reasons recently given. If the brain remembers, that can only mean that the elements which make the brain remember. But the elements in the brain to-day are not the elements which composed the brain a month or a year ago. And yet these elements, which now appear here for the first time, have, somehow or other, got possession of my past mental life. Here is a capital fact. The materialist has to explain it. Here is the passing stream of atoms, but here is the abiding person. The atoms which had my past experience have gone, and we should suppose they would have carried the experience with them. But, strangely enough, the experience has remained, and these new atoms know all about it. Did the passing atoms whisper it to the new-comers as they slipped out? Were they able to give a kind of pass-word or countersign as they went away? And were the incoming atoms able so to improve the hint

given that we should never dream of the change? But this would be to turn science into sheer fetichism, and to invoke magic as an explanation. No one can seriously believe that any thing of the kind takes place. Yet here are the elements which, by hypothesis, are here for the first time, and yet they have with them the whole of our mental life. The materialist must give some explanation.

To escape these whimsical implications of his doctrine the materialist often resorts to an illustration. He will not allow that the elements remember, but there is remembering without any thing which remembers. In a sense, he says, the body remembers its past experience. In particular, scars abide across all bodily change, and never wash nor wear out. Here we have a case of physical memory. Unfortunately, this is only a figure of speech, and the illustration fails to illustrate. If the scar were conscious of itself as a unitary, thinking subject, and an abiding personality, then the illustration would be pertinent. Until we have some ground for regarding a scar as a conscious ego, we shall reckon this illustration among the superficialities which, like a clinging curse, seem inseparable from materialistic reasoning. In fact, a scar is not ontologically the same for any two consecutive instants; but, like a river, has its identity only in the mind of the observer. The same is true for the claim that the identity of the personality rests on the identity of the body. In a proper sense, the visible body has no identity. As Leibnitz long ago pointed out, we know of only one case of true identity, and that is the case of the conscious spirit. This is the

type of all unity and identity to us, and we know of no other. Now if we allow the existence of a unitary soul in connection with the body, the facts of memory become clear and luminous. If we deny it, they are utterly opaque and unintelligible. The mental life falls asunder, and becomes merely a magical illusion. But we must go further, and declare of memory, as of consciousness, that it is strictly impossible without a unitary subject. For memory is not constituted by a succession of experiences. It exists only as the successive experiences are gathered up in a single act which binds them together in one. Some materialists, however, apply heroic treatment to this question. They say that memory, like all mental acts, is only a function of matter, and precisely similar bodies must have precisely similar memories, no matter what their past history may have been. Imagine a body about to be formed which shall be an exact copy of that of Socrates as he was conversing with his disciples on the fatal night. The deed is done, and a living being stands before us whose memory reports the trial, the conviction, the sentence, and all the other events of the real Socrates's life. It would be the real Socrates. Memory, therefore, has no relation to time. It is only a peculiar phase of mental action, and the distinction of past and present is delusive. On this theory, for all we know, we have just been made. This view needs no criticism; its statement is enough. And yet consistent materialism must accept this view, or else allow that the atoms truly remember, and that the outgoing atoms pass the history on to those which come after them. Any theory which

makes the mental life depend merely on the form or mode of combination of the elements, is forced to deny that memory has any relation to time, but is only a special form of mental illusion.

The general fact of reasoning needs only a brief notice, as the course of the argument is evident. The simplest syllogism is impossible unless the mental subject is strictly one. If A think the major premise and B the minor, there can be no conclusion. All reasoning implies that the same subject shall think both premises in order to the conclusion. If the subject be plural or composite, the conclusion fails. Now the whole of our rational life is a process of comparing and distinguishing, and its product is a system of relations. The discovery of relations is the great aim of science and reasoning. But to compare and relate, the comparing subject must be a strict unity. Thus from every side the unity and reality of the soul are forced upon us. These amazing atoms, it must be remembered, are no facts of observation; they are merely the materialist's hypothesis for explaining the unity of thought and consciousness. And as they utterly fail to account for the facts, we decide for the spiritual theory, which finds the subject of the mental phenomena in a single substantial soul. As a rule, materialism is held more from thoughtlessness than any thing else. Its disciples commonly fail to come to close quarters with the problem, but content themselves with a few metaphors about the bow on the mist, the melody from the deaf instrument, etc. These figures of speech contain all the argument needed; to inquire whether they apply to the case would

be a useless labor. The reason why the professional materialist, who is forced to recognize the capital facts we have mentioned, prefers his violent distortions of experience to the simple and luminous doctrine of the soul, is, that he assumes at the start that all being is material. His argument owes all its force to this begging of the question. Some of the coarsest type of materialists would say that they believe in matter because they can see it, while they cannot see a spirit; but any materialist whose opinion is entitled to any consideration, would be ashamed of such crudeness.

The last fact we offer in evidence is our power of action. I think, is no more a fact of experience than I act. I count for something in the course of events; I am a source of activity; I am a power. These facts are given in the universal consciousness, and materialism must furnish some explanation. This power of action, however, must not be confounded with freedom. Thus the atom, if real, has a power of acting under given circumstances, and of acting out of itself. Whenever it does act, it is the source of the action; yet the atom is not free. A thing may have power, and yet be determined in its activity; but whatever has power must be a thing. A power of action is just what constitutes a thing and distinguishes it from nothing. The materialist oddly enough confounds philosophic determinism with physical fatalism; and then claims all determinists as agreeing with him! But the two notions are totally distinct in philosophy, though identical for morals. In philosophic determinism, the soul is a true subject, but its activity is determined. This determination,

however, is from within and not from without. It is a determination by the soul's nature, and not by external agency. This doctrine allows that the soul is a source of action, but claims that under given circumstances it can act in only one way. No more does it question our consciousness that we act, but only the alleged consciousness that we might have acted otherwise. Leibnitz, who, with Spinoza, is the founder of determinism, also asserted in the strongest manner the spontaneity and reality of the soul. Both writers repudiated the notion of an external compulsion of any kind. Physical fatalism, on the other hand, denies that the soul is any thing. It rejects not merely our alleged consciousness of pluripotentiality, but our consciousness of action of any kind. We do not act. Our volition counts for nothing. But as this is opposed to consciousness, we must declare our consciousness of action to be sheer delusion. We must, also, declare that consciousness in general is only a powerless attendant upon the physiological processes; for otherwise we should have to attribute power to it. These processes determine every thing, and would go on just the same if consciousness were away. For since consciousness is powerless, its presence adds nothing, and its absence would change nothing. The body is properly an automaton, and the mental life is a sort of delusive halo which glows about the automaton, yet without in any way affecting it.

Nor is this merely a conclusion of our own. Some expressly declare that we are only conscious automata, and that consciousness itself depends on the imperfect adjustment of physiological processes. But the adjust-

ment of inner relations to outer relations is ever growing in exactness; and the physiological processes are working more and more smoothly. When the adjustment is complete, consciousness will cease; and whereas we are now conscious automata, we shall then be unconscious automata, perfectly adjusted to the "environment." In a scheme of "universal progress," this notion is remarkable as a specimen of anticlimax. Now to this notion of physical fatalism, we oppose the testimony of universal consciousness; and we expressly forbid the attempt to smuggle this notion into respectability by fathering it upon philosophical determinists. A doctrine which can be held only by flying in the face of universal common sense must be hooted from the world of thought, unless it can show the strongest evidence in its favor. And what is this evidence? What justifies this buffeting and crucifixion of common sense? Why, the simple postulate that all being is material. Where is the proof of this postulate? There is no proof; postulates are assumed. Yet to carry through this postulate, which is totally without proof, and which belongs only to the infancy of speculation, consciousness is denied, common sense is outraged, and science is plunged into hopeless skepticism. Finally, to make the farce as roaring as possible, this procedure styles itself advanced science. In truth, it is simply insane speculation, the dogmatism of the five senses. The history of thought abounds with insanities, but certainly with none greater than this. When once the unifying and formulating mania takes possession of a man, unless regulated by constant comparison with reality, it is sure to treat him

as the devils used the Gadarenes' swine. It drives him over bush and brier, and finally plunges him down steep placesof absurdity into unfathomable depths of nonsense. But nothing avails to cast the mania out. Every thing is sacrificed to it. To his whim of making matter all sufficient, the materialist sacrifices God, religion, science, philosophy, the universal convictions of the race, memory, consciousness, and, finally, his own personality. Every thing is delusion which conflicts with the sole reality of matter. And how do we know that matter is all? We have the materialist's word of honor for it; and this, together with a boisterous and vehement assertion of the fact, must suffice. The entire theory is an odd illustration of the principle that all things are possible to him that believeth. But reason has its revenge. Materialism repudiates it, and it repudiates materialism.

On all these accounts we reject materialism as a theory of the mental life, and decide for the spiritual theory. The plainest facts of consciousness establish the reality and unity of the soul. Both from the side of philosophy and from the side of the facts, materialism appears as an uncritical and superficial dogmatism. Its explanations are no explanations, and its conclusions are mainly a begging of the question, based on the assumption, (1) that matter is known in itself and as causal; and (2) that all being is material. According to spiritualism, body and soul mutually condition each other. At present the soul depends on the body for the conditions of mental manifestation; and the body is the appointed servant of the soul. It is, however, external to the soul, and is in fact only that portion of the

outer world with which the soul stands in immediate relations of interaction. The existence of such a relation is purely contingent. That a mental life should exist apart from a body is fully as conceivable as that it should exist in connection with a body. The present order can only be viewed as founded in a purpose which to some will appear scrutable, to others inscrutable.

The bearings of pantheism upon the doctrine of the soul have been partly discussed in the chapter on Theism and Pantheism. Pantheism, as well as materialism, cannot be allowed to ignore facts in the interests of a theory. We have admitted that there are no decisive facts against resolving all impersonal being into the activity of the infinite; and we have pointed out that personality is the only sure test of finite existence. But pantheism must recognize the facts of the mental life on which we have been dwelling. No matter how we are made, no matter what our relations to the infinite may be, we are active persons. As such we have a relative existence and independence over against the infinite. To deny this can only land in skepticism and the break-down of reason and science. It will be very hard for the average pantheist to steady himself at this point. One is hardly himself when the unifying mania seizes him. Therefore, the pantheist will deny the facts in the interest of his theory. Such an act, however, must not be viewed as founded in reason, but in a certain irrational itch of the speculative faculty. But every one who cares for facts, and who seeks to save philosophy from the insane extravagances which in time past have made the very word a stench to sober

common sense, will insist with equal emphasis on the immanence of God, and on the reality of the soul.

Concerning the future of the soul, philosophy can say but little. The pantheistic doctrine of absorption is an utterly untenable notion, resting, as it does, on a crude image borrowed from the senses, and repudiated by reason. Materialism, of course, holds that death ends all; but on its own principles this conclusion is hasty. Our personality is not dependent on the whole body, nor even on the whole brain. Great losses of brain matter are compatible with consciousness and the possession of all our faculties. Besides, materialistic physiologists have made us very familiar with the notion of physiological units which contain the directive force of the organism. It is equally possible to imagine molecular units which contain the principle of personality. These units may be the basis of all organization, and through organization they may come to consciousness. It is, therefore, possible to conceive some such organic units surviving the wreck of the visible body, and reproducing its conscious life in other places and forms. Of course this is merely a speculation, but it is no wilder than materialism itself; and materialism must allow such a possibility. It is very strange that materialists and atheists are willing to attribute wonderful wisdom to matter until we come to man, and then matter suddenly turns blockhead. It is omniscient and omnipotent up to this point, and then an inherent doltishness manifests itself. This seems to be an inconsequence. This matter, which has done so much, must sure-

ly be able to do all things well. When the scientist finds the realm of law forever growing on the realm of disorder, he hastens to proclaim law strictly universal. So when we find matter managing the universe with a skill which even intelligence could not surpass, and also with an eye to moral ends, the continuity of thought seems to demand the conclusion that whatever wisdom and righteousness may call for, that matter will victoriously accomplish. But the materialist regards such a conclusion as absurd. Yet why absurd? We can tell what matter can do only by observing what it does do. Would it not, then, be the supreme glorification of matter to boldly claim that omnipotent and omniscient love and righteousness cannot surpass the capabilities of matter? With well-grounded faith, therefore, may we intrust ourselves and our lot to mysterious matter. It may well have great experiences in store for us, and some which shall even rival the Christian conception of the heavenly life. It strikes us as a new kind of blasphemy that the materialist should declare that matter has found in man and his longings more than its match. But half-heartedness is one of humanity's besetting sins. The Christian distrusts God when things do not go as he wishes, and the materialist has not full faith in matter.

Our doctrine that the soul is a simple agent is held by many to imply eternal life. The soul, as a simple substance, is incapable of dissolution, and is hence immortal. This conclusion by no means follows. A simple agent might cease to be through the vanishing of

its power of action; and this power is not a thing of parts, but of intensity. All that can be allowed is this: Since nature shows no trace of annihilation, there is a presumption that nothing perishes. When, then, the soul no longer manifests itself in the accustomed way, there is a certain presumption that the soul itself has not ceased to exist. The ordinary channels of communication no longer exist, and, by consequence, the manifestation ceases. This, however, establishes no more than a presumption. From our stand-point no finite thing has a right to continued existence. It begins to be solely because the divine order and plan call for it. If, then, at any time a thing should lose significance for the general order, it would cease to be. But, owing to our ignorance of the system, we cannot reach any specific conclusions from this principle. That brute souls will or will not continue to exist, we cannot say. Their significance may be exhausted in this life; and, on the other hand, they, too, may be called to endless development and unfolding. A certain vulgarity of imagination, aided by a corresponding weakness of the understanding, always finds this latter view hopelessly absurd; but the difficulty is purely subjective. On the other hand, that human souls have such supreme significance for the system that they are to pass on to a future life, is also something which, on grounds of experience, we cannot positively assert. No more can we assert that any soul will ever so lose its value for the great whole, that it shall cease to be. This indecision of the speculative reason can only be overturned by arguments drawn from the moral nature or from revelation. If there be

such arguments, neither science nor philosophy has one word of valid protest; rather must they both rejoice that what appears to them only as a possibility, with a vague presumption in its favor, has been lifted into reality. For our belief in a future life we are thrown back upon our trust in the divine love and righteousness; and as it is forever impossible to justify the ways of God to men, if death ends all, we hold that a belief in a future life flows necessarily from our conception of God, and is the only one which is compatible with reverence for him. Whether all men shall share in this life, or whether the great mass of spiritual rubbish shall cease with death, cannot be decided by speculation. Personally, we believe that God can be trusted with our future. This most singular and extraordinary belief seems shared by very few. All kinds of speculations are rife in religious quarters concerning both the present and the future; through all of which there runs the tacit assumption (1) that God does not know what he is doing, and is in sad need of our advice; and, (2) that God cannot be trusted to do what is right. We advise, we prescribe; and, in a kind but firm way, we announce, what must be found very discouraging, that we shall be unable to trust God if our advice is not taken. Some dyspeptics conclude that things are so out of joint that God must quickly appear to wind up the world. Others spend their time, not in combating sin, but in informing God how he must deal with sinners if he is to retain their respect. That the Judge of all the earth will do right, is denied by no theist; and it is a necessary assumption of religion. But when it comes to prescribing

what the eternal laws of righteousness call for in carrying on the universe, we may well doubt whether we have the data for detailed judgments; and we may well question whether it be not more compatible both with reverence and with reason, to leave the government of the world in the Creator's hands with the confession, that both the administration and the criticism of the universe demand a deeper knowledge than ours. We have established a right to believe in a God of love and righteousness as the author and administrator of nature, who is also the Father of our spirits; and we repeat our strange confession of faith, that man and the world are safe in his hands.

## CHAPTER XI.

### POSTULATES OF ETHICS.

IN chapter iii we showed that every system of materialism, or of aimless evolution, ends necessarily in skepticism and the destruction of knowledge. A sifting chaos of atoms, or a blind, self-transforming world-substance, leave no place for either truth or error. We concluded, therefore, that a free, personal God, is the postulate and support both of science and philosophy. This conclusion plainly embraces the less comprehensive one that God is the necessary postulate of theoretical morals, and hence we might rest content with this showing. Yet owing to the peculiar state of affairs in the speculative world, it seems well to examine more in detail some of the fundamental postulates of ethics.

Irreligious speculators have always had trouble with morals and religion; and never have they been in greater straits than now. In the last century, when one advanced to atheism and fatalism he commonly had the courage of his opinions, and, in theory at least, repudiated religion and morality altogether. There was a certain whole-heartedness about the old-fashioned atheist which was not without its attraction on the score both of clearness and of honesty. But a change has come over our modern atheists; and the result is a certain inconsistency in dealing with the claims of morals and

religion. They are shy of the names of atheist and materialist, and prefer to call themselves agnostics. But agnosticism is only atheism spelled and pronounced in a different way. No sensible atheist claims to prove the negative that God is not; he only claims that experience and the visible universe give no proof of his existence. He does not pretend to know that there is no God; he claims only that he finds no ground for affirming the divine existence. But this position differs in nothing from agnosticism; both allow a possibility, and both deny any ground in experience for regarding the possibility as real. The name materialist, too, is a great offense to our advanced speculators. They do not hesitate to teach that the human mind is only a function of matter in certain combinations, which will certainly perish when the combination breaks up; but when they are charged with materialism, they frequently break out into indignation against the slander. They are not atheists; they are not materialists. Then follow sundry hysterical remarks about flinging dirt, and the *odium theologicum*. It has come to pass that references to the *odium theologicum* are as useful to the irreligious speculator, and are used in much the same way, as the burst of tears with which some women reduce refractory and recalcitrant husbands to obedience and submission. Meanwhile the simple critic who imagines that the use of words is to denote things, is filled with wonder at this rejection of the word when the thing is retained; and if he be acquainted with Bible history, he will not fail to recall the cursing and swearing of Peter when charged with being a disciple of Christ. It seems to us,

that atheism and materialism are the very best of *isms*, if true; and we see no reason for being ashamed of them. On the contrary, the enthusiasm of humanity and every instinct of manhood call for a vigorous assertion of the new truths, and a rigid deduction of their consequences. Our friends of the other side have often assured us that truth can never do harm; and hence we are all the more alarmed at this half-heartedness; for thereby humanity suffers loss. A scientific generalization, whose consequences are not developed, remains comparatively, if not quite, unfruitful. It is desirable, therefore, that the new truths shall be thoroughly and fearlessly developed; otherwise we shall lose the greater and perhaps the richer part of the blessings contained in them. It is a sad evidence of human frailty, perhaps of the debilitating influence of Christianity, that many gentlemen of the advance seem to lose both heart and head at this point, and make desperate attempts to sew the new cloth on the old garment, with, of course, the usual result of this experiment. This, however, is not true for all. Notably in Germany, where they do nothing by halves, some are beginning to raise their voice in favor of consistency. Having abandoned the postulates of ethics and religion, they demand that ethics and religion be abandoned also. But this meets with no favor from the majority. They speak of the sturdy and honest animalism of their predecessors as "obsolete brutality;" and do their best to show that a high type of morality, if not of religion, is compatible with their views.

This inconsistency in irreligious speculation is a sign of moral progress. The obsolete brutalities of Hobbes

and D'Holbach would find as little echo among the better class of skeptics to-day as in Christian circles. For somehow the idea has got abroad that moral distinctions are facts which every theory must recognize; and that any theory which has no place for them is thereby condemned. No matter how the notion originated, it is here in power; and speculators have to take account of it. In this way the moral nature is proving itself more and more an embarrassment to advanced speculation. Scarcely a point can be touched concerning which the question does not arise, What about conscience? And worst of all, the sturdy disturber will not be ignored. By consequence we find most atheistic and materialistic speculators making very earnest efforts either to provide some satisfaction for the religious and moral nature, or else to assure the world that in any case morals are safe. The notion that morals, or even religion, depend on a belief in God and freedom, is declared to be a mistake. Mill and Comte have sought to provide a religion without a God, collective humanity being the object of worship. Strauss and Clifford exhort us to worship the Cosmos, thus replacing theism by idolatry. The efforts in this line can hardly be pronounced a success. If there be no God to worship, we can do better than go back to ancestor-worship, especially as we now know that our ancestors were only functions of carbonic acid, water, and ammonia. We propose to inquire whether the assurances that morals are safe have any logical foundation; and our thesis is, that the denial of God, freedom, and immortality, leave morals without any foundation.

Common sense is the Philistine of philosophy. It is, in the first place, somewhat incredulous of all speculation, and, at least, takes little interest in it. It is strongly inclined to keep its feet on the solid earth, and it lives mainly by instinct. The speculators rail at it; but none of these things move it. This fact has both a good and a bad side; and the bad side is sometimes unpleasantly prominent. This indifference of daily life to speculation often results in a positive protection of error. A system stands or falls by its logic, and is responsible for whatever is logically contained in it. An inconsistent system is none. But great practical common sense cares nothing for systems, but lives intellectually from hand to mouth; and as long as the upholders of a theory behave themselves, common sense is willing to live and let live. In this way, many a theory which, if compelled to be consequent, would perish at once, is enabled to live along, and even to lay claim to recognition and respect. Sensationalism in philosophy and fatalism in morals live only on these conditions. They can always rely on common sense to protect them from themselves, and thus they have all their strength for attack. Another vexation must be mentioned. Certain critics, with eyes only in the back of their heads, seeing that the instincts of common sense commonly serve to correct the aberrations of theory, grow by turns merry and severe over deducing "logical consequences." Dreadful logical consequences, they say, have been deduced from almost every thing since the world began, and yet it has contrived to keep a-going. And this fact they oddly mistake for a proof that life

and morals are independent of any belief. That this is the outcome of the instinctive side of man which has counteracted the belief, they cannot see. That a system must be judged by its logic, and that it cannot be saved by the inconsistencies of its holders, is to them an utterly impossible insight. Accordingly they mistake speculative inconsequence for speculative justification. Meanwhile the philosopher who is so unfortunate as to stand by, cannot help recalling Cardinal Wolsey's reflection: "How much, methinks, I could despise this man, but that I am in charity bound against it."

In claiming, however, that morals depend on a belief in God, freedom, and immortality, we do not mean to assert a conscious connection between our sense of duty and any belief whatever. Morals depend on God just as reason depends on God. The connection in both cases is an intricate one, and manifests itself only in the reflective consciousness. We live and act long before we reflect and speculate. Our life at the start is spontaneous and instinctive, and the mind makes just such assumptions as the special case calls for. But when we come to full and reflective self-consciousness, we begin to ask for the foundations of our mental life, and whether its several factors are in harmony. Then the antinomies of reason manifest themselves, and doubts take wing, until at last we are forced to say with Descartes that God is the only foundation of truth and knowledge. In like manner our moral life begins in instinct, and we yield ourselves to the law within us without thought of its authority or of what it is going to do with us. But

by and by the restless reason, which questions all things, turns its glance in this direction also, and asks for the authority and foundation of the moral law. And then it appears that God is the postulate and support of conscience as well as of intelligence. Nor do we mean to say that conscience, as a psychological fact, is dependent on belief, but only that its authority is not a self-centered thing. The skeptic does not deny that we have conceptions of reality, but he insists that they are subjective illusions. They remain just as they were, psychologically, but their significance has gone. The moral skeptic, also, does not question the existence of conscience as a subjective fact; he allows the fact, but regards it as illusive. The question with him is not the existence, but the authority of conscience. Finally, we do not mean to affirm that atheists and fatalists are necessarily bad men. We do not deny that the sense of right and wrong, and of the beauty of right living, may be very strong in men who think themselves atheists and without any immortal destiny. As Ernest Naville says: "There are men all of whose convictions have fallen into ruins while their conscience remains standing, sole remaining witness of a demolished building." It would be strange if there were no cases of this kind. God, the eternal Love, is not to be abolished by any one's unbelief. The Holy Spirit, the Light and Life of men, is not extinguished even if man's faith does falter and die. And human love, too, abides in the human heart, burning up baseness and spreading its flaming wings for illimitable flight. It is not strange, then, that a sense of moral beauty and obligation should remain

after its rational supports have fallen. Indeed, we should view it as a most atheistic utterance to say that the work of God in the heart and in the world would cease if human faith should falter. The kingdom of righteousness is built on something stronger than man's opinions. Our only claim is, that morality has no rational ground, and that conscience itself abates its high claims when God, freedom, and immortality are denied. Morality may live on, as a blind and irrational instinct, under such circumstances; but it can offer no rational justification of its existence. Concerning the practical tendency of such denial there is no need to speak. The history of philosophy records the results of many such experiments. Modern speculators, when questioned concerning the effect of their speculations on conduct, assume that conscience is well able to stand alone. They do not know that the experiment has been tried again and again, and invariably the theoretic denial has involved morals in ruin. Whatever else is doubtful, it is better to be noble than base, true than false, loving than selfish. Here, says the speculator, I take my stand. And yet the deepest and most persistent doubt of the human mind has been on just these points. Is it better to be noble than base? false than true? loving than selfish? Is there any difference at bottom? Are not both sin and righteousness the subjective illusions of a bubble thrown up by the seething, aimless tides of the infinite? With the human mind in general, as judged by its history, these are the points where doubt first manifests itself. Conscience and duty, least of all, can claim exemption from the inroads of skepticism. And if the

denials mentioned are maintained, we believe that this practical result admits of theoretic justification.

In examining the assurances of our advanced speculators, that in any case morality is safe, we are struck by a peculiar inconsequence with regard to the moral nature in general. They are, in short, sensational moralists, who are forced, by the straits of their position, into holding the highest type of intuitional ethics. The resulting idol is a very odd compound of gold and clay. When one suggests that atheism or materialism is fatal to rational ethics, we are always treated to a homily conceived in the spirit of the highest intuitional morality. God or no God, we are told, there is an eternal distinction between right and wrong. Whether there be a future life or no, it is still an imperative duty to live nobly here. In particular the eternal sanctity of truth, and its supreme value for the seeking soul, are largely dwelt upon. The advanced thinker must have no other motto than the heroic words, "I covet truth;" and he must resign all the comforts, all the joys, all the hopes of his heart, if they seem to conflict with the eternal veracities. No illusions, no dreams for him. No belief because it is useful or because it is pleasant. However bleak and barren it may be, he will know the truth. It may leave him an orphan and hopeless in the universe, still he will know the truth. Christians are often twitted with believing immorally,—that is, with preferring the rest and happiness of unfounded beliefs to the heroic and noble disquiet of absolute loyalty to truth. Even the belief in immortality is rejected, not

merely as unproved, but as tending, by its selfish hopes, to dim the luster of absolute loyalty to right and duty. The homily is apt to close with a whispered prayer, just loud enough to be overheard, that he "may join the choir invisible of those immortal dead who live again in souls made better by their presence." By this time the objector is heartily ashamed of himself, and, as he gazes on this noble being, in whom self is crucified and duty is all and in all, he wonders how he could ever have made his unfortunate suggestion, that any conceivable change of opinion could remove from duty the seal of inviolable obligation. This moral enthusiasm glows with all the fervor of a Hebrew prophet; but, unfortunately, our satisfaction and appreciation are partly obscured by the fact that when the origin and nature of conscience are in debate, the same eloquent worthies are quite sure to tell us that conscience has a very earthly origin. Then we learn that there is no absolute right, and that moral opinions depend entirely on custom and circumstance. The moral nature has its roots in physical desire. Love of pleasure, fear of pain, a bit of sympathy, and a large amount of selfish expectation, will produce a conscience when thrown together in the same being, and worked over by the chemistry of association. Our distinctions of right and wrong rest upon no eternal nature of things, but express merely the way in which we have been brought up. Had the "environment" been different, both truth and righteousness would have been different. Let the theist but construct an argument for the existence of God on the nature of conscience, and

he will quickly learn that conscience has little reason to be proud of its pedigree. Now, one cannot help feeling surprise when he learns that the expounder of this doctrine is the same superior being who before made such a glowing and thrilling defense of absolute truth and right. We should be justified in calling a halt right here, and insisting on a choice between these two views. Both cannot be held at once. If conscience have the genesis just described, it is folly to speak of any obligation higher than that of common prudence. What has been put together can be taken apart. It is vain to imagine that conscience could maintain its authority if this view of its origin were fully accepted. Self-respect would not permit us to be ruled by an impostor, and the mob of passions would turn out in wild glee to drag the usurper from power. If this did not happen, it would be because the holy voice of nature secretly condemned the theory, even in the moment of its triumph. The absolute authority of conscience cannot be united with this theory of its origin. To hold now one view and now another, according to the exigencies of the argument, impresses one with the same feeling of awe which invaded the minds of William Nye and Truthful James at the wonderful play of "Ah Sin." Common honesty, and that supreme truthfulness which has been set up as the chief virtue, demand that a choice be made here. We say it deliberately and with emphasis; this fundamental inconsistency can be rescued from the charge of knavery only by postulating an ignorance alike dense and profound. If truth be so supremely valuable, and if our views lead to the over-

throw of ethics, why not say so? This halting between two opinions, and holding both and neither upon occasion, is not calculated to produce a favorable impression either of one's truthfulness or of one's insight.

We pass to the specific denials mentioned; and, first, we consider the denial of freedom. One point on which advanced speculators seem to be agreed is, that the soul is properly nothing, and that all mental states, feelings, thoughts, aspirations, and volitions, are the necessary outcome of the physiological processes which underlie consciousness. But when we object to this view, that it denies and overturns true morality, the speculator is very fond of using the great Calvinistic theologians to screen himself from attack. When Professor Huxley made his address, "Are Animals Automata?" he warned his critics in advance that if he were to be summoned to answer for his doctrine of automatism, he should not appear alone, but should bring Calvin and Edwards with him. This position is partly the confusion of philosophic determinism with physical fatalism, to which we referred in the last chapter, and partly a misrepresentation of Calvinism. Calvinism does not deny freedom, but sets up other doctrines which its opponents regard as incompatible with freedom. The predestination which it affirms is expressly said to be of a kind which does not conflict with, but rather establishes, the freedom of the creature. To the average mind this is not much of a predestination after all, but it is certainly intolerable to charge the Calvinist with denying freedom. Indeed, it would be much nearer the truth to say that Calvinists were first among

modern theologians to affirm a natural freedom in man. But, however this may be, the question before us is not one of great names, but of simple logic. For our own part, we should be quite undismayed if Edwards and Calvin did appear as Mr. Huxley's supporters. The law of identity and non-contradiction cannot be broken by any weight of authority. No more is the question whether theoretic deniers of liberty have practically admitted it. No system can be saved by the inconsistencies of its friends. The great attraction of advanced thought is its claim of consistency. If it is to abandon logic and consistency, and live by instinct, we might as well stay where we are. Christianity suits our instincts as well as physical fatalism; and if the latter can show no better logic there is no reason for exchange. Inconsistent theology is bad enough, but inconsistent atheology is worse.

Let us, then, deny freedom, what would theoretically follow? The fatalist, appealing this time to Butler, says nothing would follow. If there be any necessity we are now living under it, and daily life would remain unchanged if we became conscious of that necessity. But, as usual, the fatalist mistakes his authority. He mistakes Butler's *argumentum ad hominem* for a defense of fatalism. Now, the claim that daily life would remain the same applies, at best, only to the external form of action, and not to the inner life. This sameness of external form is, probably, what Professor Huxley means by one of his *symposium* utterances, which says that when it is seen that the consequences of moral law are as inexorable as those of

physical law, men will break the one no sooner than they will the other. A fatalist will not put his hand in the fire any sooner than the believer in freedom; and when it is clear that moral law has consequences just as fixed, no theory will seriously affect conduct. In so far as morality is identical with prudence, there is a certain force in this, although even this doctrine tacitly denies physical fatalism. That which can foresee results, and determine itself accordingly—that which can "think twice" before acting—is a person and not a machine. Here again Mr. Huxley confounds philosophic determinism with physical automatism. A machine does not think twice. Consciousness has no power over the mechanism. The outcome is, in every case, but the resultant of mechanical processes which are independent of our imaginary volitions. To advance thus far is pure skepticism; to stop short is to abandon fatalism. Moreover, if we may trust consciousness at all, we know that the resulting action would not remain unchanged. The kind of opinions which our brains grind out depends very largely on the kind already there. Spencer represents reasoning and volition as a conflict between different ideas, which in turn are but the subjective side of nervous action. "Nascent motor excitations" originate in the brain. Subjectively these appear as different ideas. When a nascent motor excitation occurs alone it passes at once into action. Such are instinctive and reflex action. But when two or more arise together there is a conflict. Subjectively this conflict appears as comparison and reasoning. Finally, the strongest carries the day, and issues in action. Subjectively

this appears as volition. But the original and independent fact is the conflicting nascent motor excitations, and volition and reasoning are only the subjective shadow which the objective realities cast. We see, on this theory, how important it is to have the right kind of nascent motor excitations in the brain. Now, as a matter of fact, the nascent motor excitations corresponding to ideas of right, duty, freedom, responsibility, are the great breakwaters which prevent other unpleasant nascent motor excitations from issuing in action, which, on the old theories of ethics, would be decidedly objectionable and blameworthy. We are persuaded, therefore, that the removal of these conservative nascent motor excitations would lead to the appearance of other nascent motor excitations whose result would not be pleasant to contemplate. If, for instance, the lazy and criminal classes were freed from the sense of right and wrong which now turns them into cowards, many social problems would, we doubt not, receive a sudden solution. To the claim, therefore, that action would be unaffected by an acceptance of fatalism and a denial of guilt and responsibility we oppose this most scientific showing, based on the profound doctrine of nascent motor excitations. Indeed, it is a necessary conclusion from physical fatalism that any change of opinion points to a change in the nervous processes, and must, therefore, lead to a change in action. It is, then, highly unscientific to teach that new opinions are compatible with the old forms of action. Poor, pachydermatous common sense is so imbued with the instinct of freedom, that it fails to hold these speculators to their own

views, and mistakes the implications of the theory for aberrations of the critic.

But even if we should allow that action would remain unchanged, we have not saved morals. We have no longer a moral system, but only a caricature. What we have, in fact, is a herd of automata who externally mimic the action of moral beings. They reward and punish, praise and blame, just as if good and ill deserts were facts, but in truth they are only "the cunningest of nature's clocks." Now, we are so made that when we fairly grasp this view we can no longer attribute merit or demerit, guilt or innocence, or responsibility of any kind, to such beings. Sin and righteousness vanish. Remorse and shame fade away, and the sting of sin is drawn. Punishment is not retribution, but self-defense. It has no element of justice in it; it is but the brute struggle for existence. The so-called good man has no claim to approval, and the bad man deserves no blame. Both alike are what their viscera have made them. Healthy viscera give rise to what we call right action; diseased viscera produce wrong action. If there were only some way of making one responsible for his viscera, we might save morals; but, unfortunately, the viscera are too strong for us. The morals of fatalism, then, must be purely external, and the difference of action must be sought in the outcome. There is no moral difference in the actors. But, unfortunately, even this system of external morals is not plainly possible on the principles of fatalism. If there were some one somewhere who was independent of his viscera, and who could, by modifying the condi-

tions, guide the viscera of others to happy external results, there would be some hope. Or if, among these "cunningest of nature's clocks," there were some self-adjusting clock which could also re-adjust the other clocks when they get out of order, the case would not be hopeless. But when all are automata, it seems impossible to change the future. Prudence, and foresight of results, we are told, would avail to prevent immoral action even in a fatalistic world; but, unhappily, foresight of results seems quite useless unless we have some power of acting in accordance with the new knowledge. A foresight of results will not help one out of the current of Niagara. In fact, prudence and foresight, as controling factors, are as incompatible with physical fatalism as are merit and demerit. Even determinism has always had difficulty at this point, and has been forced to posit a power of "thinking twice," and of indefinitely postponing action. By skillfully and judiciously overlooking this difficulty one may contrive to give an air of rationality to fatalism; and common sense, the great philosophical pachyderm, will always take the hard-pressed fatalist under its protection because of his inconsistencies. If, after announcing pure automatism and fatalism, the speculator is only careful to say, "Now let us all do our duty," every one is satisfied. If some unhappy bystander should ask how an automaton can have duties, the speculator at once holds him up as a moral outcast; and thick-headedness says, "Served him right." But there are previous questions in morals as well as elsewhere; and when, then, the teachers of physical automatism urge us to do the duty which lies next

us, we shall insist on knowing how an automaton can have duties. In the present state of the case an answer to this question is much more important than any amount of moral exhortation. It is also a duty of theists to insist upon consistency or surrender at this point. Gentlemen of the advance, take heart and courage. Remember what you have said about the supreme virtue of truthfulness. Remember, also, your high claims in the matter of logical consistency; and either abandon the language of morals, which has meaning only in a scheme which you repudiate, or else confess that you dare not and cannot be consistent. In the latter case, reflect on this question: Is illogical atheism in any way superior to illogical Christianity? The new cloth will not join to the old garment.

Happily, however, these inconsistencies are disappearing. An enthusiastic German evolutionist, F. v. Hellwald, in a work* published in 1874, insists upon the struggle for existence, and the right of the stronger as the only basis of morals. There is neither freedom nor soul, neither absolute truth nor absolute morality. He claims that the word morality should be banished from scientific writings, because it is empty; and he describes all philanthropic efforts to raise men to ideal manhood as "humanity-hypocrisy," (*humanitäts-henchelei.*) Worst of all, he insists that advanced speculation must come to this. If, now, we ask how to deal with social problems in such a scheme, Professor Tyndall gives us an answer in his address, "Science and Man," before the Birmingham and Midland Institute. He represents him-

* *Culturgeschichte in ihrer natürlichen Entwickelung.*

self as arguing the point with a "robber and ravisher," and he gives the conclusion of the whole matter as follows: "You offend, because you cannot help offending, to the public detriment. We punish you, because we cannot help punishing, for the public good." When proposing to put the "robber and ravisher" to death, the professor says to him: "The public safety is a matter of more importance than the very limited chance of your moral renovation." Of lesser punishment he says: "It will make you think twice before venturing on a repetition of your crime." To the robber aforesaid he says: "We entertain no malice or hatred against you, but simply with a view to our own safety and purification, we are determined that you, and such as you, shall not enjoy liberty of evil action in our midst." Now this is something like. The professor recognizes that no one is to blame, and expressly founds the right to punish on public utility. Our only ground of hesitation is, that remark about "thinking twice;" for we have seen that thinking twice is incompatible with physical fatalism. A striking peculiarity of advanced speculation is, that a profound and subtle exegesis is commonly required to find what the writers mean; and nothing is more common than charges of misrepresentation, after the critic has done his best. Sometimes, too, the critic is overwhelmed with indignation, and held up as a moral outcast, for doing what he could not help. However, the explosion of wrath is also necessary, although only in unreflecting minds. But in spite of traces of the superstition of freedom, a careful collation of passages indicates that the professor

means to deny all spontaneity, and to base all difference of action on its outcome.

The professor has done well; but we regret that he has not done better. He has merely made a very feeble beginning, and has quite failed to appreciate the grandeur of the new ethics. Perhaps it would be well to let the doctrine remain an esoteric one, otherwise our reasoning might be retorted upon ourselves. The criminal is no more dangerous to society than society is to the criminal; and he is morally no worse than the best. Which shall be called criminal and which virtuous is only a question of relative frequency, or of majorities. It is quite conceivable that criminals should be in the majority, and should begin to say to us: "We entertain no malice or hatred against you, but simply with a view to our safety and comfort, we are determined that you, and such as you, shall not live in our midst." We experience great enthusiasm for the new ethics, but such is the hardness and uncircumcision of the natural heart, that the coarse fetichisms of Christianity will probably be necessary for the mob for some time to come. But we may suggest for the inner circle of the initiated some valuable applications of the new principles. We have got clear of God and goodness, and have set up utility as the justification of action. Now it is a sad fact that the mass of men do not seem worth keeping. They are without any assignable reason for existence, and they are undoubtedly a great embarrassment both to themselves and to society. Under the old notions of right and wrong and God, such people were a knotty problem for society; but how beautifully simple the

question is from the new stand-point. The new principle is in sociology what the law of gravitation is in astronomy. At once the social heavens fall into order. Why should not such people be killed off? Some one will reply that they have done nothing worthy of death; but he is still in the gall of bitterness and the bondage of Christian iniquity. He forgets that there is no longer any crime in the old sense; being a nuisance is the only crime recognized under the new dispensation. Why not, then, abate the nuisance by practical measures? The bondage of the old morality may still be strong, and our feelings may at first be shocked, but that only proves that we are not fully indoctrinated. Advance to new truth is never accomplished without mental friction; and there is always a tendency to import the old into the new. The early Jewish Christians insisted on carrying Judaism into Christianity; and it needed all the logic of Paul and of events to convince them that the day of the old was done. This most paltry and unworthy illustration may serve to show how the traditions of the old gospel will for a time creep in and corrupt the new and most glorious gospel of advanced speculation, unless we resolutely keep watch against them. There is a seduction in all forms of error; and the old gospel is peculiarly seducing. It has little in it fitted for the strong man, but most men are not strong. Human hearts will ache, owing, of course, to maladjustment to the environment; but they ache nevertheless. The cry of the mourner goes up from every quarter under heaven. And the conscience, too, is filled with pain and with gloomy and solemn sus-

picions. Hence the old faith, with its absurd and degrading doctrines of a Father in heaven, a loving and forgiving God, and a future life, is just fitted to capture the crowd who reason only with their feelings and from their pains and longings. It is a sad fact that Christ, and Moses, and the prophets, seem to the mob better teachers than the advanced speculators. This makes it necessary always to be on our guard against the poison of the old contagion. So subtle is it and pervasive, that only eternal vigilance will secure immunity. Now in any case there is little hope of the moral improvement of the wretches we have mentioned; and if it should occur, it would only be an improved kind of physiological action. What relief would come to society and to families if tramps and criminals, and sickly, deformed, helpless and unpromising children, and persons who are hopelessly diseased or are in their second childhood, could be quietly disposed of; not, indeed, with malice or hatred, but gently, as if we loved them! How many there are, also, who have large possessions which they are not using for the public good, but which their heirs are eager to send into the general circulation. Yet these people live on, obstinately and even maliciously, and apparently with no purpose but to balk the happiness of their friends. What a field for operation in this direction! And not only do public and private interests demand that the classes mentioned be dispatched, but philanthropy and the enthusiasm of humanity re-echo the demand. We owe it to the future to root out some of this accursed stock. We who labor for ideal manhood and for ideal society are con-

stantly disheartened by the tremendous force of hereditary evil which works ceaselessly and mightily against us. What solution is there so simple and so thorough as to kill off a million or two of this class every year, until the festering cess-pools and miasmatic swamps of humanity shall be freed from their poison and defilement? Such action would probably beget a new set of nascent motor excitations in those who remain, and might result in very general reformation. Hitherto we have kept our hands off of these wretches only on account of sundry obsolete notions of God and human rights; but now that we are freed from these whims, can we, as lovers of our race, stand by and see the pestilence threatening posterity without making determined efforts to stamp it out? We avow it: the reigning sentimentality in this matter is the outcome of Christian superstition. The old philosophers knew better. The divine Plato recommended the exposure of infants and the killing off of the helpless. The Fijians, too, with the profound insight of a nature uncorrupted by contact with Christianity, did the same thing; but since the advent of the missionaries they have fallen from this high estate. Some of them carried considerations of utility still further, and ate such people as it was found inconvenient to keep; but this action, though quite allowable on the new principles, and not without its advantages on the score of economy, is hardly in accordance with our present tastes. Perhaps a compromise might be effected on the basis of the opinions of some advocates of cremation, who have dwelt at length on the waste of the present custom of burial.

These matters of detail, however, may be left to the progress of opinion; but at all events it is plain that nature is bent on rooting out the unfit; and both duty and interest call upon us to lend a hand. The mawkish and invertebrate sentimentality of Christian philanthropy is a foul sin against the Cosmos and posterity. Think of the wretches it tolerates and vainly tries to reform. Think of the great army of deaf, and dumb, and blind, and helpless, and idiotic, and insane, which it taxes us to keep. What a blot on the otherwise brilliant universe! What a trial to our feelings and taste! Above all, what an expense! And even Christianity itself, and the whole machinery of religion, what an expense to no purpose! Heavens and hells have vanished. The fires are out; and the furnaces are cold; and the great white throne is a dream. There is large room for killing in this direction. It is not to be thought of that we should leave the weak, and ignorant, and credulous, to be preyed upon by these pious swindlers. For a time, perhaps, we may allow it to go on; but our conscience, our self-respect, and our regard for humanity will not forever tolerate these mummeries which merely frighten and deceive, and which serve no purpose except to maintain an army of locusts which eat up every green and good thing. Already we have laws against getting money on false pretenses; it is plain that the whole swarm of ministers come under its operation. Of course we have no feelings of malice or hatred for any one, because no one is blamable. The unhappy Christian or theologian is not responsible for his obsolete notions, but we think that the

pointings of utility and duty are very plain in the matter. Perhaps, however, they are not so plain. Upon reflection, we find that we have unconsciously been false to our new principle. On the old theory, the falsehood of religion would warrant our opposing it; but on the new theory, we may find a use for religion after all. Now these notions of God and duty have an undoubted value for society. The highest and most valuable satisfactions of life depend upon them. Let a man be fully possessed by them and he will become a better father, or husband, or son, or brother, or citizen, or neighbor. This cannot be doubted; and hence we are thrown into doubt concerning the propriety of clearing out the preachers. On the contrary, since the advanced speculator has done little for science and speculation except to disgrace them; and since his views have no public utility, but great public mischief in them, must we not conclude that the most judicious thing would be to kill off the speculators and leave the preachers? This seems to be a plain pointing of utility.

It is to be regretted, that Professor Tyndall did not extend his principle to these cases. Our conclusions seem to us to be the plainest deductions from his premises. Man is a machine, totally without moral character; our moral notions are the product of custom and prejudice; and earthly utility is the foundation of such morals as remain. Perhaps, however, he failed to state them because of their evident truth, deeming it sufficient to lay down the principle, and leave it to others to apply it. It is possible that even the professor would draw back from some of these de-

ductions; for reformers are seldom conscious of the full results of their principles; but that would only prove a certain mental inertia or ossification which prevents his shaking off all the influences of association and habit. To the pure reason, however, all is clear. Towering above the mists and miasms of custom and superstition, it clearly perceives the goodly land flowing with milk and honey. As a means of helping one to an appreciation of the new ethics we suggest the following problems: Why should we not set up the law of the strongest as the law of life? And why should not a man kill and eat his mother if his tastes, inclinations, or interests should lie in that direction? It is hoped, however, that no advanced speculator will attempt to solve this problem by the method of instincts; for if we are to work out problems by this method, we had better go back to Christianity, as that satisfies the instincts very much better than do materialism and fatalism. The great attraction of the advanced doctrines is, their logical consistency; if that is abandoned, they have no reason of existence.

Let us pass to the second point, the denial of a future life. Here, too, the denier takes high ground in favor of intuitional morality, and repeats the common remarks about the absolute sanctities, etc. If there be no life to come, it is a duty to be noble and not base. There is a sublime grandeur in heroic struggle and sacrifice, even if we sink into nothingness the next moment. He is also careful not to miss the opportunity of expressing his scorn for the selfishness of those who look

for a future life. But unfortunately, this worthy is commonly entangled in the doctrines concerning conscience and freedom which we have mentioned; and that leaves us in doubt whether his fine talk is due to ignorance or knavery. There is no noble and no base on his theory, for every thing is opinion and prejudice. There is also no noble and no base, for every thing is mechanical. What fine strategy this is, to grab up for the sake of a sneer notions which elsewhere he expressly repudiates! What an instructive illustration of his notions of truthfulness and honesty! It is possible to raise a very small quibble, and say that there is difference of worth even in mechanisms; and hence that the mechanical doctrine does not exclude the distinction of noble and base. But the answer is evident. A watch is better than a piece of pig-iron; and a horse is better than a hog. But the better in these cases has no moral signification; while the better and worse which we are considering are exclusively moral. But we omit to press these difficulties; and point out that struggling, agonizing, etc., are not heroic in themselves, but only when they have an heroic object. One might struggle, and even agonize mightily, to walk a thousand miles in a thousand hours, but it would not impress any one as especially heroic. To struggle for nothing is the mark of a fool and not of a hero. Hence before we give way to sentiment about self-sacrifice and agonizing, reason asks, (1) how an automaton can struggle and sacrifice itself; and (2) what the self-sacrifice and agonizing are for. These are previous questions in moral theory, and demand an answer. The facts on which this seem-

ingly high-toned morality is based are these: The moral law, as revealed in every normal conscience, is not cut out on the pattern of prudence or of self-interest. No more is it cut out with supreme regard to animal or earthly interests; on the contrary, it claims to outrank them if they collide with it. Any thing may, and must, be sacrificed rather than violate the sanctity of conscience. Thus the moral law appears in our lives as an unconditional imperative, commanding and giving no reasons. It is not based on calculation, but appears as an original instinct of our nature. It is this fact which has led many intuitionists to imagine that the law is self supporting. But this law, like all other laws, must justify itself to our reason. This instinct, barely as instinct, may rule the life until reason comes; but then it must give some account of itself. As a simple, opaque fact, disturbing animal happiness and flouting earthly prudence, we want to know its authority and its meaning. No amount of sentiment can avail to answer or resist this rational demand; and it is one of the great services of the utilitarian moralists so to have forced this point upon the consideration of intuitionalists that it is now generally admitted. The law of a being depends on its destiny and flows from it. There is a distinct absurdity in placing a temporal being under the law of the eternal; and there is intolerable injustice in placing a being under a law which is hostile to its interests, or which is out of all proportion to its well being. Any law which any being is under obligation to obey must be a law contrived for its highest good; and if it appear that any law runs counter to our true good, that

law ceases to have any obligation, both reason and conscience being judges. The law of a being, we repeat, must be measured by its nature and destiny. There is nothing unbecoming in an earthly being's living for the earth; and if the heavenly life is a dream, it is both rational and becoming that we should live for this. It cannot be a duty to live for the unattainable; the bare notion is an insult to both reason and conscience. The thoughtless intuitionist will be startled at this, and may possibly advance to denial; but this is due to overlooking our stand-point. We do not mean, that practically, men measure duty by utility, or are constantly asking, What shall we have therefore? But while we may in practice command obedience without asking reasons, we must in theory always be able to give reasons. Otherwise our command is irrational and arbitrary. Without doubt the stand-point of practical morals is that of command; but theoretical morals must furnish some justification of the command. What, then, is the authority and meaning of this moral law, which disturbs our lives, crosses our plans, and mars our peace? Christianity gives an answer. It says that we are under a law too big for the earthly life, because our real life is not measured by our earthly existence. This life is but the beginning, and not the end. It reveals this life as photographing itself indelibly upon the life to come. It tells of moral development and dignity beyond all thought at present. We are called to communion with God. We are called to be like God. We are called to eternal life with God. This is our destiny, and our law is correspondingly great. What-

ever conflicts with this destiny must be trodden under foot. Hence when hand or foot offends, we must cut it off and cast it from us. Hence we are to struggle and agonize to enter into life; for the gain of the world were nothing if the soul were lost. At once we see the tremendous significance of action, and the baseness of surrender to the brute within us. It is infinitely worse than Prince Hal, if he had preferred to remain among his boon and boozy companions in the Boar's Head at Eastcheap when called to the throne of England. From this stand-point the moral law appears as no wanton or arbitrary impertinence, but as the organic law of the soul's life and peace. But if we reject this view, the law, so far as it transcends earthly prudence, appears as monstrous injustice. The moral nature itself turns against it. The law no longer appears as something godlike, but rather as a demon-hand thrust enviously up to clutch at the little happiness which his short life makes possible. Man is called upon to render justice, and shall the universe be unjust to him?

Christianity gives a reason for the moral law, and justifies it to our intelligence. Let us abandon the Christian theory and see what rational ground there is for obeying the moral law beyond the limits of earthly prudence. Much sentiment is poured out at once, and in particular the selfishness of our view is dwelt upon. We will not insist on the fact that this decrier of selfishness is commonly the one who bases the moral nature on the most abject selfishness, and who by his doctrine of fatalism denies and destroys all moral distinctions. For the sake of a sneer he is willing to steal

the notions which belong only to his opponent; and we are willing to indulge him in it. But we must point out that this attack on selfishness misses its mark. It is not the selfish instincts, but the moral nature, which protests against a law out of all proportion to the good of its subjects. Nor is it the selfish who have insisted upon a future life, but Socrates and Plato, Paul and Christ. Not the brutal, but the spiritual, perceive what a ghastly farce this life is when taken alone. The implied claim of the positivists, that they themselves are the only ones who have emancipated themselves from selfishness, would be infamous if it were not so ludicrous. But, it is urged again, it certainly is selfish to refuse to sacrifice ourselves for the good of others unless we see our own advantage in it. Here, also, the objection fails to touch bottom. There is nothing more abhorrent to the moral nature than just this law of sacrifice, except on one condition. That the one should be essentially and utterly sacrificed to the many is to empty all morality and reason out of the system of things; and the world becomes the strict parallel of a helpless ship in mid ocean, whose crew, driven to cannibalism by starvation, kill the weaker, one by one, in order to satisfy their horrid hunger. If such were the case, both pity and conscience would command, not that some should submit to be eaten, but that all should stand by and go down together. No amount of sentiment will help us out of this trouble, or make such a universe other than a moral horror. Our atheistic sentimentalists, in their attempts to escape selfishness, constantly undermine their own position. Absolute unselfishness in theory

reduces to absolute selfishness in practice. For if one's own happiness ought not to be a good to himself, there is no reason why he should secure happiness in another. If every one should find happiness in another's good, then we can do the best for others by doing the best for ourselves, and letting others know how well off we are. Or instead of living for the future, we should rather live for ourselves, and let the future rejoice in knowing what a good time we had. The general sum of happiness would remain the same; and a bird in the hand is notoriously worth more than a flock in the bush. No one ought to care for happiness; hence it can be no duty to produce it. Every one ought to find his happiness in that of others; hence we can best further the moral welfare of others by letting them rejoice in our prosperity. Thus the theory passes into its opposite and cancels itself. Of course, men do instinctively recognize the duty of unselfish action; but they do not instinctively recognize the postulates of such a moral community. We look only at the side of the individual, and not at the side of those benefited. We take it for granted that it is quite the noble thing for them to take all they can get. They tell of a Russian woman in a sleigh with her children pursued by wolves. And as the wolves were about to overtake the sleigh, she threw a child to them. This she did again and again, and finally reached the village alone. She told her story; and a peasant, seizing his ax, cleft her head at a blow. She had no right to be saved at such a cost. And that is precisely what the universe is if there be no hereafter in which the interests of the one and the

many shall be reconciled. No rational theory of self-sacrifice is possible on the supposition that the one is really and essentially sacrificed to the many. Here is an antinomy of conscience which conscience itself cannot resolve. Intuitional moralists have almost invariably overlooked the dualism of conscience on this subject; for conscience justifies a rational self-love as much as it does self-sacrifice. The New Testament reconciliation is the only possible one: He that saveth his life shall lose it. This is the law of unselfishness. But he that loseth his life the same shall save it. This is the clause which reconciles the law, not to our selfish feelings, but to our conscience, our reason, and our sense of justice. Personal good and the universal good must be at bottom one; and this they cannot be if the individual's faithfulness is to result in his destruction. Without this assumption there is nothing upon which the conscience turns more fiercely than upon this law of sacrifice. If one is unwilling to admit this reconciling thought of a future life, let him at least cease to dwell on the duty of self-sacrifice. Of course if any one finds delight in self-sacrifice, no one objects. As a refined form of egoism, it justifies itself; but it can never be commanded as a duty. Of course, the advanced speculator will once more forget his theory that right and wrong are conventional, and that men are only automata, and will swagger out sundry attempts to sneer at this doctrine as base and groveling; but such an exhibition will merely serve as a standard of his mental power.

Our claim, then, is not merely that selfishness over-

rides conscience when a future life is denied, but that conscience itself abandons its high claims in that case. Here are the facts: In a few years it will make no difference to me what I have been. In a few centuries it will make no difference to the universe what the human race has been. Whether happy or unhappy, moral or immoral, all will have passed away and left no sign. The difference between right and wrong will have disappeared, and the righteous and the wicked will have reached a common goal. Now the holder of this view attempts to preach morality, and what can he say? Worldly prudence every one can understand, and we need no moralist to teach that. But what room is there for any thing more? Of course we do not mean that every body would plunge into beastliness if the belief in immortality were gone. Differences of taste would still remain, but that is all. Duty would be an empty word, and taste and prudence must give the law of life. But taste has no law, and every one must be left to his own devices. Here it might occur to some enthusiastic moralist to speak of the joy and dignity of right living; but as for the joy, most of us find duty a yoke and a burden; and as for the dignity, we now know that it is only an improved kind of physiological action, and nothing to be proud of. Sadly enough, the taste of the masses does not lie in the direction of moral growth and self-development. Men are annoyed and vexed at any apparition of duty, and they would gladly shut it out of both thought and life. Now how could a humane unbeliever in immortality justify himself in disturbing a pleasant worldly life by this nightmare of

duty? Even if his fatalism did not make appeals to duty miserably irrelevant, there could be no duty to strive after the unattainable. Whereupon the advanced speculator once more breaks out in his grand way, that there is an essential nobility in duty; but in the assumed circumstances, this can only mean that his tastes run in that direction, and that he chooses to stigmatize the tastes of others as base and groveling. But he has no right to do so. His egoism and self-esteem are satisfied in one way, and he then assumes to lord it over others who differ from him. To increase at once his own glory and the opprobrium of his opponents, he calls his own views noble, dignified, etc., while those of the other side are called base and brutal. But in all this we detect the influence of heredity and the moral environment. Such notions will disappear when he fairly masters his own principles. Each must be allowed to go his own way, free from all interference, except such as utility may suggest, and from insolent assumption of superiority on the part of others. If the egoism of one man delights in certain psychological fineries, let him choose them, so far as he can choose them. If another is better pleased with the more substantial goods of the senses, let him be equally free, so far as he can be free. Above all, let moral absolutism, which alone is true morality, die the death. The critic must allow that if a future life be denied, the present life would be more comfortable if the sense of duty were toned down. If at any time the advanced speculator should feel tempted to attack these conclusions, let him first of all reflect on his own theory, that

right and wrong are purely conventional, and that men are merely machines without any proper moral character. If this does not avail to stop the nuisance of his periodic outcry, let him further reflect whether a theory which he denies every time he opens his mouth, and which in turn denies all those truths by which men and societies live, be not a doubtful one. Or is it, perhaps, the glory of advanced speculation to be received only by pure faith, and in opposition to all the teachings of life and reality?

It is unnecessary to discuss the effects of atheism upon morality, as it implies the difficulties already mentioned. We close this discussion by pointing out that upon any theistic theory it is impossible to justify the ways of God either to conscience or to reason without a future life, and without the Christian theory of that life. God is either the perfect, or he is nothing. His purposes also must be worthy of him, or the mind will deny him outright. To think less than the highest of God will, by an inner dialectic of thought, pass on to his denial. But creation has as yet reached no end which justifies it to our reason. If we think of a period a few thousand years further on, when the present order shall have passed away, and the ancient silence and loneliness of God shall have returned, we cannot help asking the question, What is it all for? This meaningless stir of creation, which is soon to sink back again into silence, is it worth while? It is at this point that we comprehend the despair of the Indian religions. We Occidentals have had a childish readiness to view God as the creator of the finite order; that is just what

the Oriental mind has found impossible. It did not doubt the Infinite, but questioned whether the Infinite could connect itself with such a finite. The finite, as we know it, is unworthy of the Infinite. He cannot descend from his sacred, everlasting calm and silence to found or take part in this stupid, senseless turmoil of the finite. Hence the finite does not exist. It is a dream only, an illusion. God is not in it, for it is unworthy of him. Hence let us, also, seek to escape from it, and by reflection on the eternal, and by withdrawal from action, let us lose ourselves in the infinite rest and silence. Until very recently, this conception was impossible to Western thought. It was a matter of course, that God could not want any better business than to make and maintain our world. As for the world, it was a great success—a little blackened, indeed, by the Bible, but upon the whole a very excellent thing. All this has changed. Pessimism has made mighty advances in science and philosophy. It is becoming fashionable to deride the universe, and the cant of progress is receding. Whoever has the words of eternal life, it is at last settled that science and philosophy have them not. From the Indian stand-point the Indian notion is profoundly true. The finite, as we experience it, is not worthy of God. If the drama of our existence is to end with the earthly act, there is no unity in it, and we cannot ascribe it to a rational being. Conscience and reason are satisfied only as we advance to the Christian doctrine—that the full purpose and magnificence of creation become manifest only in eternity. "It doth not yet appear what we shall be; but when He shall appear,

we shall be like him, for we shall see him as he is." By a necessity of thought, when we abandon this standpoint speculation recedes toward atheism or pantheistic substantialism. All speculation between these extremes is in unstable equilibrium.

We have not sought to prove that our advanced speculators are bad men, but that their doctrines deny morality. Neither sentiment nor personal character is concerned, but simply and solely logic. Hence appeals to sentiment and charges of misrepresentations are irrelevant in reply. We do not urge the results deduced as any disproof of the premises, we only insist that they flow from the premises. There is no injustice in putting premises and conclusion together. If it be said that the conclusions are insane, we do not deny it; but that does not prove that they do not follow from the premises, but rather that the premises are insane also. And we suggest, as a topic for reflection, whether a doctrine which denies consciousness, conscience, and all the great principles on which life, and society, and government are founded, has not almost reached a *reductio ad absurdum*. But if any will insist on holding the premises, let them be forced to accept the conclusion. We have given the question this prominence because we believe that mischief has been done by ignoring it. The minds of many are confused by the prevailing inconsistency on this point. They are led to assent to much solely by the assurance that morals shall suffer no harm. The critic, of course, cares nothing for consequences, but he must insist on consistency. We might

as well fall back on Christianity, if we are to give up logic. The old faith had its Nemesis, according to its critics, and its Nemesis was always logic. If the Nemesis was fatal to the old, why should it show pity on the new? Let, then, the question be dragged into light, and let it be kept there until loose-jointed skepticism shall learn what it is doing, and until speculative trickery shall be forced to be consistent, and to accept the logical outcome of its opinions. The question for our advanced speculators to consider is, whether we shall live by instinct or by logic? If by instinct, then logic has nothing to do with life and practice; and we are left to find that theory of life and the world which shall best satisfy our instincts, and bring most peace and dignity into life. But if we are to live by logic, then let us live by logic, and abandon all views which are not in harmony with our professed opinions.

THE END.

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